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ABSTRACT

Feminist pedagogy is characterized by a sustained effort to acknowledge the dialectical relationship between the learner and that which is to be learned. In a feminist classroom the teacher insists upon the integration of personal experience and affective response with subject matter, discourages students from being passive recipients of knowledge, and works to create a learner-centered and learner-active environment. The hypothesis of this research project was that one semester of exposure to feminist pedagogical practices could improve, in a quantitatively demonstrable way, the self-esteem of female students, their interest in and liking for the subject matter, and their willingness to continue in higher education. The participants were 20 postsecondary teachers and students of sociology, physics, French and English language and literature, computer science, and early childhood education. The overall objectives of the feminist pedagogy was to empower the students as active participants in the learning process, to incorporate a learning method more comfortable for female students, and to help students integrate learned materials into their own thought processes. The pedagogical practices included self-disclosure (interviews and journals), peer support partnerships, writing-to-learn strategies, and collaborative course units. Although the hypothesis of the study was not proven, qualitative data in the form of interviews with the participating teachers and analysis of their records of pedagogical intervention in the experimental classes strongly suggest that there were improvements in a number of areas which bear upon the original hypothesis. Appendixes include letters, tests, and explanations of qualitative measures used in the project. (JD)

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ED327502

A Practical Assessment of Feminist Pedagogy

A RESEARCH REPORT

BY

Fran Davis
Arlene Steiger
Karen Tennenhouse

U.S. DEPARTMENT OF EDUCATION
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Fran Davis

Arlene Steiger

Karen Tennenhouse

I. STATEMENT OF THE PROBLEM

Over the past year, we have been testing a group of teaching strategies which are intended to improve female students' self-esteem, their interest in and liking for the subject matter in a range of disciplines, their commitment to continue in the subject and their attitude and commitment to further education in general. We have also sought to measure the effects of these strategies on the actual performance of female students. Although we were initially drawn to work in this area as a result of the concerns which had been expressed by both men and women teachers at Vanier College, our formulation of the research problem has represented a response to a larger body of data. This data suggests that women and men have different educational patterns and that the pattern for women is distinguished from that of men by their tendency to drop out of the educational system in greater numbers at higher levels.

According to Statistics Canada (1985), the proportion of female university students in Canada rose from 37% in 1971 to 45% in 1983. However, more than half of the increase was accounted for by part-time students. While 31% of male undergraduates were part-time students in 1983, 45% of female students were part-timers. Women received 51% of the bachelor's degrees in Canada, but more men entered graduate programmes and substantially more men received doctorates (25% of Ph.D.'s are women). Needless to say, women remained concentrated in their traditional fields.

It is interesting that in the sciences the same pattern for

women appears but it is more dramatic and it manifests itself at an earlier stage of the student's academic career. At Vanier College, the women's rate of programme transfer or drop-out ranged from 1.5 to 2 times the rate for men in 3 of the 4 years from 1983-1987 (Registrar's Statistics, Vanier College, 1986). There is no reason to believe that this pattern is atypical. In fact, in the passage from college to university it becomes increasingly clear. The CEGEP level registration rate of women at approximately 45% drops to 35% in pure science and to 20% in applied science at the university level (Bureau de statistique, Université Laval). This, in spite of the fact, repeatedly reconfirmed, that the success rate for women is actually slightly higher than that of men (Bulletin Statistique, DGEC, 1984).

To us as researchers, these findings suggested that our research should be conducted across several disciplines and should include, but not be limited to, the experiences of women in the sciences. The statistics on the performance of women in the sciences also alerted us to the importance of emphasizing the extent to which women do not make up a disadvantaged group in the traditional sense of this term. We found it useful to conceptualize the underrepresentation of women as evidence of a tendency for women to abandon the educational process more readily than men and it was clear, from the outset, that one would have to understand the "drop rate" as the result of a complex of factors.

It is within this context that we wanted to underline the

research and documentation on various forms of sexism in education in Québec. Philippe Ricard (CEGEP Rosemont) has been concerned with the operation of sexism in the CEGEP milieu (1984, 1987-88). Lise Horth (Collège Drummondville, 1985, PAREA) has also investigated the extent to which teachers reproduce the sexist attitudes of society in their relations with the college clientele.Lise Dunnigan's work (in co-operation with the Conseil du statut de la femme and the Ministry of Education, 1975) has isolated the contribution of school manuals and texts to the perpetuation of sexual stereotypes in Québec and the Ministry of Education has since 1978 expressed its concern with the impact of direct and systemic discrimination (Québec, Ministère de l'éducation, Dossier sur la condition feminine). We do not want to dismiss the impact of sexism. Overt and hidden forms of discrimination have shaped and continue to shape women's educational career patterns in ways which we are only beginning to trace. Nor do we want for a moment to dismiss the importance of economic and social factors in shaping the educational pattern of women. Any attempt to understand the drop-rate for women must also include recognition of the extent to which women experience marriage and the family as countervailing forces vis à vis the pulls of higher education.

Nonetheless, the present research sets out to explore a different terrain. We wanted to focus upon that aspect of the "drop" phenomenon which could be understood as representing the failure of the educational process to captivate female students.

At this point then, we took up the feminist critique of education which suggests that traditional pedagogy, practised with the best of intentions in a classroom where men and women sit side by side in apparent equality, may not be experienced in the same way by the sexes. There is a large and varied body of research which bears upon this issue.

One of the first areas which we investigated was the interaction of gender differences with standard forms of classroom interaction. An interesting mix of research data, drawn from different disciplines and involving quite different populations, suggests that female students may be disadvantaged in even an average sized class, where the vast majority of the interaction is either focussed on or mediated by the teacher. Of crucial importance here are the gender patterns of talk and interruption. Most of the studies in this field confirm that in mixed groups, men speak more frequently and they are more likely to interrupt when a woman is speaking (Spender, 1980). Research specifically directed to examining classroom behaviour reproduces very similar findings. Myra and David Sadker confirm this view and they observe that the process is perpetuated by the greater tendency of males to make verbal interventions as opposed to raising their hands (Laforce, 1987). The male voice appears, therefore, to be the dominant voice in the classroom and, we have reason to believe that some women students will eventually sink into silence (Rich, 1979).

In our research, the unequal distribution of talk between

the sexes has been of particular concern because of its potential impact upon the learning process. There is a persuasive body of pedagogical theory, developed in England and the United States, and closely associated with the approach of Literacy Across the Curriculum Programmes, which emphasizes the critical function of language in the acquisition of knowledge. In France, the work of Stella Baruk, to understand learning in mathematics, offers an interesting exploration of the theory in practice.

Baruk (1985) underlines the indispensable role of talk in the language of everyday discourse, as the means by which the teacher of mathematics can uncover the significance of error and help the student move toward understanding. In fact, she even conceptualizes understanding as a form of hearing- "l'entendement". If, as these theories maintain, speech is central to the process by which students come to possess material and lay claim to it as their own, then students who are not given the opportunity to speak, and students who, for various reasons, do not seize the opportunity to speak, are at a disadvantage. We now know that women are disproportionately over-represented in these groups.

The teacher, as the mediator of interaction in the classroom, clearly plays an important role in all of this and it is therefore significant that several researchers have found that teachers are frequently unconsciously complicit in the process which accords more time and more attention to males. (Serbin and O'Leary, 1975). So powerful are the forces at work, that American

researchers have found that even teachers who identify themselves as feminists are unable to accurately assess the relative frequency of "boy-talk" and "girl-talk" (Laforce, 1987). These findings also serve to suggest that, however important non-sexist attitudes may be in terms of creating a non-sexist environment in the classroom, non-sexist attitudes may, in themselves, not be sufficient to ensure equal treatment for female students. We have thus placed pedagogical practice at the centre of the research design for this project.

Since female students seem to fare less well than male students in the competition for attention in the classroom, it seemed important to consider the possibility that competition in general might impact differently upon the sexes. In fact, the research suggests that female students may be disadvantaged in situations where standard pedagogical practices emphasize competition either in terms of performance in class or through evaluation techniques. For decades now researchers have observed that women's performance tends to decrease as the level of competition increases. Women's achievement patterns in competitive situations have been variously interpreted as manifestations of role conflict, structural inequality, and institutional discrimination (Epstein, 1984), anxiety about failure, and anxiety about success (Horner, 1969). Clearly it is not within the scope of this research project to weigh the relative merits of the various theoretical stances. It is, however, important to insist upon the fact that competition

itself seems to have a negative effect upon women.

The findings with respect to the negative impact of competition are given new significance by more recent evidence which suggests that women's performance is enhanced in situations which favour co-operation. Again the data here is drawn from several different fields of inquiry. For example, Dale Spender, in tracing gender differences with respect to speech patterns (1980), demonstrates that women are more inclined to co-operative modes of expression and problem solving. Carole Gilligan (1982) stresses the premium placed upon co-operation in the psychological development she describes for women; and this is one of the clear gender differences revealed in research evaluated in the Vista series "The Pinks and the Blues".

This work on co-operation forces one to re-evaluate the meaning of the reticence which teachers often observe in their female students. The behaviour which we here term reticence is described frequently in the literature - most eloquently perhaps by Adrienne Rich (1979). It also finds expression in the reports of teachers who have participated in various workshops which we have conducted. For the purposes of the current research, we have found it useful to conceptualize the non-participation of students in competitive situations as the expression of a preference for an alternative mode of interaction. In other words, as Leonie Burton suggests, if students (and she is here describing women students in the mathematics classroom), are not participating then perhaps "... ceci n'est pas seulement une

question de confiance mais une préférence pour un style d'interactions qui ne soit pas empreint de confrontation et de compétition" (Lafortune, 1986).

It is therefore hardly surprising that research on gender differences also suggests that women's psychological development may differ from that of males in terms of the premium which is placed upon human relationships. Carole Gilligan (1982) argues that women value the relationships between people over abstract principles and,in fact, in this respect the development of moral reasoning may proceed differently in females than in males. Belenky et al (1986) trace an analogous process in their exploration of different modes of knowing in women. Working with different data, they too come to emphasize the importance of "connectedness" in seeking to capture and validate the process by which women come to understand their worlds.

All of which leads to the final area of concern in terms of this project, namely, the extent to which women may be disadvantaged by an educational system which values the rational over the intuitive and which consistently denies and even invalidates the importance of affect. Researchers in this area warn of the dangers of lapsing into traditional stereotypes and indeed, most are agreed that there is no basis for positing biological or immutable sources to explain the propensities which many observers have noted. Nonetheless, it is true, as Marie Josée Desrivières points out that Québec university women report "qu'elles aiment les approches globales associant approche

rationelle et intuitive" (Laforce, 1987).

Both research and common sense tell us that women's experiences, shaped by socialization and mediated by the social structure, are different from those of men. For these reasons, Adrienne Rich (1979) emphasizes the importance of introducing and validating individual female experience in the classroom and, in fact, this is a cornerstone of feminist thinking in the work of British and American educators. In the United States, Evelyn Torton Beck (Bunch and Pollack, 1983) reports positive results in surveys of women students exposed to courses which use various self-disclosure techniques.

All of these considerations led us to propose that female students might be better served by a pedagogy which more faithfully reflected what we know about the needs and expectations of female students. Such a pedagogy has, in fact, been developed. Termed feminist pedagogy, because it takes account of the experiences of female students, its conceptual framework represents an effort to address many of the issues of gender difference which we have raised above. Hence, feminist pedagogues emphasize the establishment of "an atmosphere of mutual respect, trust, and community in the classroom" (Bunch and Pollack, 1983) as a primary goal. Real efforts are made to break down the hierarchy of the traditional classroom, in the interests of building a genuine learning community where co-operation replaces competition, and the collaborative qualities which seem more frequently to characterize female learners can be

experienced as advantages (Culley and Portuges, 1985).

In the feminist classroom, education is conceived as a process and thus there is a sustained effort to acknowledge the dialectical relationship between the learner and that which is to be learned. As part of a generalized effort to respond to the symptoms of disempowerment which seem to characterize female learners, there is an insistence upon the integration of personal experience and affective response with subject matter. At the same time, students are discouraged from becoming passive recipients of knowledge and the feminist teacher works to create a learning environment which is learner centred and learner active.

We hypothesized that the use of this pedagogy in the classroom would increase the comfort, commitment, and thus ultimately the performance of female learners and, with our attention firmly focussed on pedagogical technique (as opposed to content), we proposed to test the efficacy of this pedagogy across a range of disciplines. However, before we could proceed to the testing, it was necessary to translate the pedagogical theory into teaching practice. We therefore turned to the preparation of a coherent set of feminist pedagogical strategies.

II. PREPARATION OF SUBJECTS AND MATERIALS TO BE TESTED

The preparation of teaching materials and the selection and preparation of participating teachers were part of a highly interrelated process. We were, at every stage, both refining our pedagogical strategies and clarifying which specific disciplines would be most suitable for the experiment. For the purposes of clarity, however, we will present the process as follows.

A. Search and Selection of Teachers

Early in September, we circulated a letter and questionnaire to all teachers at CEGEPs André Laurendeau, Edouard Montpetit, Montmorency, Dawson and Vanier (Appendix 1). The questionnaire itemized strategies we were interested in exploring, very much as they had been listed in our research proposal (Appendix 2). We asked the teachers to indicate whether they had ever used any of the strategies, whether they would consent to be interviewed about their experiences, and whether they would be willing to participate in the research itself.

We received about fifty responses, from teachers in a very wide range of disciplines. It was clear that some areas would be more suitable for the experiment than others. many humanities teachers, for instance, showed great interest in the project, but since humanities is taught only in the English CEGEP and differs considerably from its parallel core subject, philosophie, in the

French CEGEP, we were forced to consider these teachers inelligible for the actual experiment. Subjects such as music and fine arts we considered too difficult to monitor inasmuch as teaching in these areas is often individualized and therefore makes little use of classroom process. It was also necessary to narrow the focus of two of our original target areas: Social Science and science. Teachers of sociology, anthropology and economics showed an interest, and we made our choice of sociology as the subject most widely taught in French and English CEGEPs. In the science area, though teachers of mathematics and biology answered the questionnaire, we chose physics as the test subject since it more clearly represents a non-traditional area for female learners. In the Careers area, we originally decided upon Nursing as representative of a field much occupied by female learners, and Computer Science as representative of a field broadly perceived as male dominated yet still offering a reasonably large sample of female students. As we had anticipated, these decisions regarding the Careers were complex and difficult to make. At a later point, because of the intricacy of its programme demands and pedagogy, we were forced to abandon our volunteers from Nursing in favour of those from Early Childhood Education.

In sorting through these responses and making a preliminary list of teachers whom we could call upon to take part in the testing, we were also listing a different group of teachers whom we could call upon for preliminary interviews about their

teaching experiences. This second list was comprised of those teachers whom we had to eliminate, as described above, and those who expressed an interest in the interview but not the full semester of experimentation.

B. Background Interviews on the Proposed Pedagogical Strategies

The interview schedule (Appendix 3) which we designed for these sessions allowed us to examine how teachers in various disciplines had been using the strategies we were proposing, and what they thought about their success. Since each of the teachers interviewed had ticked off the strategies they were accustomed to employ, and these were by no means consistent, each interview necessarily covered different territory. The range of disciplines involved (English, francais, physics, biology, Computer Science, psychology, Mechanical Technology, Early Childhood Education and Nursing) also made for a variety of responses. Thus, though the interview material was complex and in some ways difficult to correlate, it was enormously helpful to us in developing our strategies so that they could be used in the disciplines we were intending to employ. In all, eighteen teachers (twelve female and six male) were interviewed between September and November. The interviews were taped and the information we gained from them is presented here under the headings for the original six strategies we were proposing to test.

1. Self-Disclosure

The teachers who were most willing to talk about this strategy tended to focus on two principal kinds of disclosure which a teacher might make to a class: personal examples of life situations and personal examples of learning process.

Teachers of Language and Literature and of psychology seemed to feel it natural and necessary to talk about their own personal experiences in the classroom, not only to clarify material but to encourage students to make personal connections as well. They agreed that their readiness to use this tactic had a great deal to do with the subject matter, dealing as it does with human problems which students understand better if they can identify with them. These teachers said that self-disclosures of this kind could be either planned or spontaneous: one can "discover" a useful personal intervention in one class and then make it a regular part of the teaching of that area in the future. These teachers seemed to rely on intuition to guide them as to how often to use the personal, and how much to disclose. All were aware of the importance of making only suitable disclosures and of distinguishing between disclosure and confession.

Somewhat to our surprise, and very helpful to us in the final shaping of this strategy, was the fact that far more teachers talked about disclosure of personal learning processes than about personal life situations. Examples which allowed the teacher to situate herself/himself as a learner were seen as most useful in democratizing the classroom and establishing an

atmosphere of respect for enquiry. These self-disclosures were often affective, inasmuch as their principal content was how the teacher had felt about certain learning situations as a student, or how s/he had felt about an idea or a process when it was first encountered. Affective disclosures were not the only kind to be discussed, however. Some teachers actually brought to the classroom the work they were currently engaged in - articles, experiments and so forth - where either the content was relevant to the course, or the teacher's activity formed a parallel with some activity being taught.

Teachers in the Career areas of Early Childhood and Nursing used a great deal of self-disclosure which appeared to combine both personal experience and learning process. Their examples were usually drawn from clinical experiences of their own in the field. These examples had both affective and cognitive components, often provided problems for discussion, allowed students to see their teachers as struggling with some of the same questions as they were, and encouraged students to discuss the difficulties they might be having in their own field work.

Some other teachers were clearly wary of this technique. One male teacher said that self-disclosure comes naturally when a teacher feels particularly close to a group, but that if the technique were to be used as a pedagogical tool it might well be resented as intrusive. This remark actually rejoins those of the comfortable users of the strategy who stressed the matter of appropriateness. Few science teachers appeared interested in

discussing the method. Fewer men than women appeared to be interested in the method, though it is true that a larger portion of those men interviewed were science teachers. Of the non-science male teachers interviewed, one felt very comfortable with self-disclosure while another tended to use life and process examples which came from his observations of others rather than from his own experiences.

Interestingly, none of the teachers appeared to feel that self-disclosure had created pedagogical problems for them. The question of eliciting therapeutic relationships was dealt with at some length by the psychology teacher, but she was quick to point out that she thought therapeutic relationships with students arise more from the subject being taught than from self-disclosures by the teacher. She asserted, moreover, that though students might seek her out to discuss personal difficulties, extreme dependency had never become a problem. Clearly, experienced teachers communicate very effectively the appropriate boundaries for teacher-student relationships. Encouraging personal connections to material does not seem to have side effects which teachers willing to use the method cannot handle. The negative remarks made about self-disclosure came from those who do not use it.

2. Peer Support Groups Inside and Outside the Classroom

It was during the interview process that we discovered how easily this strategy could become confused with collaborative

group projects. Clarifying what we meant for the interview subjects helped us to clarify it for ourselves, and their comments and experiences allowed us finally to make important distinctions. One of the very useful contributions came from an early Childhood Education teacher who brought us an article on learning partnerships to add to our literature (Robinson, Sabetryon and Griffin, 1985). Also useful were the science teachers' experiences with lab partnerships.

All teachers agreed that having students work together had enormous educational advantages. Having two or three students work on a task requires them to talk out problems in comprehension, make decisions about alternatives, and actively work toward some conclusion. In terms of engagement with subject matter, teachers were unanimous that this team approach was superior to almost any other classroom method. In terms of drawing the best out of otherwise retiring and inactive learners, teachers of Language and Literature were most emphatic about the advantages of dyads and triads. One male English teacher spoke about the particular opportunities for self-expression which this method presented for the quiet female students. Two teachers of français said that female students always did the best partnership work, especially when paired with each other.

In terms of actual partnership formation, most teachers tended to feel students should choose their own. It was observed that students tend to choose students of their own sex and ethnic group to work with, if at all possible, and that these

partnerships work the best. One of the science teachers talked about the painful occasions where a student is left out, and has to be found an "unwilling" partner by the teacher. The particular example he described demonstrated a problem both of gender and visible minority status. No solutions were suggested, but this is an important point and must be kept in mind.

Science teachers were quite comfortable with the notion of full term-length fixed partnerships, since this has become the practice in laboratories. One said that the original reasons for such partnerships may well have been space, equipment and cost of materials, but that even if there were opportunities for students to do labs alone, partnerships would still be his choice because of the learning process such arrangements offer to students. Teachers in non-science areas were less comfortable with term-length partnerships, and spoke of their concern about partnerships that "don't work". Most teachers favoured groups of two, but some argued that three is less competitive and more practical in terms of absenteeism. Science teachers were much more concerned about differences in ability level in peer group learning than non-science teachers. One science teacher said that she always organizes any peer work only after she has come to know of the ability range in her classroom. Another teacher said there is less advantage in such partnerships for the bright student who can easily do the work alone.

An important area of concern is the matter of individual responsibility in any peer activity, and how such an activity can

be fairly evaluated. Science teachers liked the lab situation in that the work has to be done together but the lab written up individually and the mark given for the individual work. Teachers in non-science areas seemed to be more anxious to evaluate the work of the dyad as well, and offered suggestions as to how to involve students evaluating each other as well as having some way for the teacher to check the process.

The use of class time is another area of concern. Science teachers were prepared to use partnerships only in the lab; to use them in the rest of the course took too much time, they said, and interfered with covering course content. All agreed that any kind of peer interactive work takes enormous amounts of class time, and one has to be prepared to deal with this problem.

What none of the teachers interviewed addressed, however, was our specific notion of learning partnerships which carried on outside the classroom and helped students develop confidence in their ability to help each other in informal ways toward a sense of their own autonomy as learners. When we talked about such outside the classroom connections, teachers spoke of the very real problems of students getting together outside of class, the difficulty for the teacher in determining who did the work if some kind of product is involved, and the general problem of monitoring the process. It was our sense, however, that most of these remarks were focussed around the idea of group projects with student membership of four or five, rather than process-oriented and affectively based connections between two students

who could easily do a lot of their communication over the phone. In fact, none of the teachers had actually used partnerships as support units in the way that we had envisaged.

3. Self-Initiated Projects

Certain teachers were quite adamant that self-inititated projects are the only kinds of assignments that allow students to fulfill their learning potential. The importance of student interest was stressed over and over again by these teachers. They described how they assisted students in choosing topics of interest and relevance, if such assistance was asked for, but the starting point was always the individual's interest or the priorities established by the class as a whole. The teachers who were convinced of the importance of this type of assignment came from widely differing disciplines: English, psychology, photography, and Computer Science. The fact that the subject was not discussed in the science area reflects that area's tendency not to use projects as a pedagogical device.

It became clear as we talked to these teachers that self-initiated projects are most often used in group contexts, and that the same willingness on the part of the teacher to allow students to explore their own interests is often coupled with a willingness to allow students to guide and collaborate with each other. In both cases, students are entrusted with and responsible for a part of their own learning.

4. Using Writing in the Learning Process

Many of our interview subjects had been involved in Literacy Across the Curriculum workshops and therefore understood what we meant by a writing component that allows students to explore ideas and questions without concern for the quality of the written product. Others, however, lacked this background, and we sometimes had to explain that the writing assignment which tests writing proficiency or mastery of material is not writing to learn.

All the teachers who used writing in the learning process stressed its effectiveness in focussing student attention and forcing a process of thought. Only two (one in Nursing, another in photography) were actually using it as a classroom device. Most were using journals in which the students wrote at home. In the Nursing area, journals of clinical field work are often required, and give students the opportunity to record their experiences, reflect upon them, and express their feelings about what has transpired. These journals also become material for discussion in groups. Both the psychology and the Early Childhood Education teacher had used class reaction journals in which students were required to reflect on their classroom learning and to make personal connections with the material. The Early Childood teacher stressed the fact that when she reads these journals, she merely comments on them; she does not correct but asks questions to extend thinking. Most of the teachers using writing to learn agreed that marking for writing accuracy is

inappropriate, though they did bewail the poor writing skills of their students. One was very clear, however, about the fact that the quality of writing in the journal was always much superior to the writing in term papers, possibly because of the students' interest in and commitment to the task.

A teacher of biology described an experiment with a collective class log, filed on reserve in the library, in which students were required to write once a week at least a page of commentary on some subject relevant to the course. Each student was given an alias and section in the log (a loose leaf binder) which corresponded to the alias: it was into this section that they were to file their writing. Subjects were sometimes assigned by the teacher, and sometimes left up to the discretion of the students. Students began to read each other's writings after a while, and to comment upon them.Much of the dialogue, however, seemed to revolve around the identification of students rather than the subject matter. When we asked the teacher if she felt this alias absolutely necessary, she was not adamant about it: she had thought the students might be more willing to participate if they knew their anonymity was protected. She felt the experiment had been a great success, and that it had not been as much work for her as individual journals. She had only to go to the library when she had the chance and check off each student's work.

5. Student-Centred Course Materials

It became clear during these interviews that all concerned teachers try to incorporate student-centred materials into their courses. In the sciences, this involves providing examples and problems that tap students' prior knowledge and interest. In the non-science areas, it often involves not only using examples and assignments appropriate to the students' interests, but choosing texts that students will find relevant and meaningful at this stage of their development. There were varying degrees of awareness of the problem of sexist materials and the importance of finding ways to make female learners less marginalized in the learning situation. On the whole, the female teachers seemed much more sensitive to this problem inasmuch as they were the only ones who would voluntarily introduce the subject into the conversation with the interviewer.

6. Appealing to Differing Skills and Styles

Only two teachers gave overt reference to this matter: an English teacher and a biology teacher. The English teacher said that he always tried to outline different ways of learning at the beginning of his courses and to suggest that students should try to identify their own preferred method and maximize their opportunities for making use of it. On the whole, he said, he left it up to the students to follow up on the matter. The biology teacher said she does much the same thing (though interestingly her learning style model was entirely different

from the English teacher's). She went on to say, however, that she felt the matter of learning styles had been addressed, assessed and discussed a great deal, but little had been done to connect it with teaching styles, and how teachers can facilitate different kinds of learners.

We began to feel, however, as we talked to more teachers, that good teachers tend to accommodate different learning styles by varying the methods used in the classroom, and by allowing exceptions for students with exceptional difficulties or abilities.

7. Collaborative Work on a Collective Project

As stated in item 2 (Peer Support Groups),there tended to be a good deal of confusion about the differences between support partnerships and group projects. For the purposes of the interviews, we began to make a distinction between partnerships on the one hand and larger groups on the other, as well as between on-going process-oriented dyads with many disperate tasks and one-time task-oriented groups with something to contribute to the class as a whole. However, it was clear that there were many variations possible. Instead of presenting examples, of which there were many, we outline here the concerns which teachers expressed which led us to design our strategies the way we did.

One of the principal concerns about collaborative group work is the time that it takes. If students are asked to do the preparation outside of class, their differing schedules make it

an almost intolerable burden. If they are given time in class to do the work, weeks of class time can vanish. For these reasons, many teachers, particularly those in Nursing, have given up on group work entirely, though all spoke as highly of its advantages as they did of the peer support partnerships.

Another concern about group work is evaluation, how to design models that allow for individual as well as group work, and consequently permit the teacher to give fair grades. Some teachers admitted they had simply come to accept the fact that individual input to group projects always varies, and that the best students do more of the work. Most, however, were uncomfortable with giving only group grades. Allowing students in the group to evaluate each other was a device suggested by some and distrusted by others. Some of the teachers had very intricate means of ensuring that individuals had specific tasks within the group that could later be evaluated. Some had strategies by which improvement in individual student performance is not only rewarded individually but also returns as an advantage for the group.

Though few of the teachers articulated it openly, it became clear that group work requires a great deal of careful planning on the part of the teacher. It requires relinquishing an area of the course to the students. The choice of topics is of primary importance: some areas are suitable for group work and some are not. Teachers also need to find some balance between directing the work and allowing the students to find their own directions.

Teachers who felt their group work had been successful were those who had very precise notions about the objectives of the task, the relationship of individuals to the group and the group to the rest of the class, and how much class time must of necessity be given to students to do their planning. They had also worked out ways of monitoring the progress of the group without interfering with group dynamics. This monitoring sometimes takes the form of written reports, and sometimes office appointments with the teacher. They were all conscious of the problem of class attention to student presentations and had ways of making sure that there was something for the listeners to do with material being presented. These successful teachers also appeared to be very experienced in the use of group work, and confessed that their methods had been worked out through trial and error. All said that the process was worth it, even if the products were sometimes weak. All agreed, however, that group products were usually of amazingly high quality. Not surprisingly, few science teachers were interested in collaborative group work because of the class time problem and the individual grade issue, but one used a model much used in non-science classes, where small groups work out individual solutions and then discuss the implications of their findings in the class as a whole.

C. <u>The Strategies Chosen for Testing</u>

The interviews clarified several important points about the

preparation of strategies for pedagogical testing. First, it was important to have clearly defined, distinctive teaching behaviours and/or classroom procedures for teachers to follow. Second, it was very important to provide these teachers with guidance for systematizing these practices with respect to evaluation and integration with course content. Third, it was necessary to give the teachers in the experiment some way to record their use of the strategies, so that they could monitor the process and describe it to the researchers.

These general principles guided us both in the selection and in the description of the strategies we decided to use. It became very clear through the interviews that three of the strategies described in our research proposal and discussed with the interview subjects were not useful for the project in that particular form. Self-inititated projects, for instance, appeared to be so specific as to discipline that it would be almost impossible to design a procedure for a multidisciplinary group of teachers to follow. Moreover, science teachers were not using projects. Furthermore, some non-science teachers saw projects as group work, while some others did not. Finally, to what degree can students ever be said to initiate work on their own ? Does the word self-initiated mean that the students merely choose their own topics, or does it mean that they choose whether or not to do the work at all ? Recognizing the importance of student-centred tasks which is underscored by this strategy, and determined to build this element into the package under another

heading, we decided to abandon Self-Initiated Projects as a specific strategy.

Similar decisions were made with respect to Student-Centred Course Materials and Appealing to Differing Skills and Styles. As became clear in the interviews, all good teachers try to do both of these things, and would be unwilling to teach control sections without making use of these strategies. Course materials are also unique to course and discipline: we did not see ourselves as equipped to furnish this type of guidance for such a large number of disciplines. With respect to learning styles, we decided that, in a certain sense, the whole project was addressing this question, in that new and better learning styles for women students were being sought out.

We therefore chose to focus the testing around Self-Disclosure, Peer Support Partnerships, Writing in the Learning Process and Collaborative Course Units. In doing so, we were first of all eliminating some of the confusion in our earlier definitions. We were also eliminating as specific strategies those areas of the original proposal which actually embodied pedagogical principles rather than pedagogical techniques. We were very conscious, however, that the important principles of learner-centred learner-active education must continue to animate the research. The teacher package which we therefore prepared for participants was designed to offer a list of related strategies from which teachers could select those behaviours which best suited their own style, subject matter and personality. We

recognized at this point that we would not be testing the strategies individually, but that we would ask teachers to adopt at least two and to follow our directions as carefully as possible throughout the semester. In this way, we believed, we could test the efficacy of the pedagogy as a group of related strategies designed to better accommodate the needs of female learners.

1. Self-Disclosure

The importance of personalizing education for women students has been much discussed in writings by feminist educators (Bunch and Pollack, 1983; Balenky, 1986; Spender, 1981). Systematic designs for the use of self-disclosure have not yet appeared in the literature, however, and we were forced to define our own and request that teachers follow it as closely as posible. We defined two aspects of self-disclosure: one for the classroom lecture/discussion, and one for responding to students' written work.

Ideally once a week, but at least once every two weeks, the teacher chooses a few moments of class time in which s/he can reveal her/himself engaged in a learning/working process rather than as an accomplished master of skills and content.In making this self-disclosure, the teacher tries to create an atmosphere in which the students feel free to examine their own states of process, reveal their own confusion, ask questions, and see the learning process as universal and desirable rather than either

the temporary state of the young and powerless or the uncomfortable state of the impossibly ignorant. The point is to engage the students, insofar as is possible, as colleagues, albeit junior ones, in a discussion of their work. The goal is to enhance the students' capacity to see themselves as serious learners who are responsible for their own thought processes.

Contexts for self-disclosure are easily found, once the principle is clear. One could indicate how difficult one found a particular problem or concept when one was a student; conversely, one could say how exciting or helpful one found a particular idea or connection. Disclosures about present learning situations which the teacher is involved in can also be used to help bridge the gap between teacher and learners. A disclosure about some aspect of the teacher's life experience which illustrates what is being dealt with in class is designed to encourage students to make similar connections with their lives and to find new relevance in the course material.

We assumed that the greater the variety of contexts in which the teacher uses disclosure, the more likely it is to have a positive effect. We asked teachers to keep a systematic week-by-week record of the disclosure process and its effect on the class so that they could learn from their experience.

In using self-disclosure to respond to written work, the teacher/reader communicates her/his reading process of the student text and how this process leads to the final grade. Simple "I" statements are used throughout the responding process.

The strategy is designed to emphasize reading process as learning process on the part of the teacher, rather than prior mastery of material by the teacher against which the students' efforts are measured. For this reason the teacher's comments throughout the paper are more important than the final summary comment.

This strategy has obvious relevance in the teaching of Language and Literature (English and français) where student writing is much emphasized and problems of writing competence and confidence are dealt with directly. The nurturing and egalitarian interventions of the teacher are designed to help students reread and revise their texts for improved communication and development.

Moreover, because this strategy is designed to emphasize the extent to which teachers, like students, are involved in a process of grappling with various issues, it is particularly well-adapted to the Social Sciences. Here, research is, indeed, recognized as an on-going process of confrontation and resolution between the researcher and the object of her/his research. In self-consciously communicating this dynamic to students, teachers, we believe, can meaningfully humanize the classroom by emphasizing the shared academic endeavour. The student thus becomes, if not a partner, at least an accomplice.

Self-disclosure in responding to work which students hand in for evaluation is more difficult in science areas, but if ways can be found to use it, some of the intimidating pressures of getting the "right answer" should be ameliorated. In this

respect, comments on various stages of the lab report or at early points in the solution of a problem highlight what is working and what is not, and how each step of the process contributes toward the final result. They invite the student to examine her/his writing or problem solving process to see where it can be improved, rather than to experience the sense of failure in having arrived at the wrong answer. This careful use of process commentary encourages in teachers what Stella Baruk sees as so essential: the recognition of exactly where the student's difficulties lie with respect to mathematical concepts and processes (1985). "I" statements are designed to be encouraging, and remarks like "I think you went wrong here", with a clear indication of where the student should begin to rethink her/his work, are more useful, we believe, than a large red X at the end.

We provided teachers with a list of sample "I" responses for use throughout their reading of the paper, as well as some suggestions as to summary statements which urge the student to respond to these responses.

2. Peer Support Partnerships

Our definition of this strategy became much more specific after the interview process. We dropped the word "group" and adopted "partnerships", "dyads" and "triads", clearly limiting the numbers in each team. We also suggested permanent term-length dyads or triads who work together, both inside and outside the classroom, so that no student needs to experience the course

in isolation.

The overall objectives of this strategy are to humanize the classroom by creating structures which offer students the opportunity to build relationships of mutual respect, trust and support with other students, and to enhance the autonomy and self-sufficiency of each student by placing value upon student-centred learning. The use of peer partnerships is designed to deal directly with those feelings of alienation and marginalization which female learners describe as part of their experience of traditional classrooms, particularly in large post-secondary institutions, and, even more specifically, in science areas.

We suggested on-going activities in which the teacher offers sometimes more, sometimes less structure, but in which there is always some simple way for the teacher to verify that the dyad is working properly. Peer support partnerships need validation in terms of specific tasks and recognition in terms of marks. For the latter, we suggested a block of marks be set aside for the peer partner process, perhaps five or ten, and that the marks be given to those students who participate fully in those tasks which are set in motion. Students should be asked to write a short evaluation of their partnerships once or twice during the term. As to learning tasks, they should be designed in such a way that they can easily be checked off rather than corrected, so that they do not become an intolerable burden for the teacher but are still recognized as valuable parts of the student learning.

Early in the semester, in the second or third class, but with at least one class of warning, students should be given five minutes of class time to confirm their dyads/triads, exchange telephone numbers and time tables, and so on. The teacher should make a record of the partnerships at this time, and make some in class use of the dyads in the next few weeks. The point must be made by the teacher that students can be helpful to one another.

We provided teachers with a very full list of possible tasks for dyad/triad work. Dyad exercises such as paired introductions at the beginning of the course can be used to help reinforce listening and speaking skills, but their main purpose is to improve class atmosphere and raise the level of subsequent student participation in class discussion. Partners can help each other with assigned readings by interviewing each other on specific aspects of the text. Partners can help spot check aspects of each other's writing. Collaborative assignments can be devised in which the partners help each other choose and refine topics, select readings, and set up work outlines. Specific problems can be assigned for partnership rather than individual homework: individuals must thus talk through the process and agree both upon the methods to use and the final answer. Individuals within a partnership can be assigned to explain some concept to each other, whether by using an analogy from everyday life, or by actually constructing an object made of simple materials, to illustrate three-dimensional concepts, for example. The partnership can be assigned to make up, co-operatively, a

problem on a certain topic which will then be used either by the teacher in the class, as a part of a set of homework exercises, for a class test, or for a review class. Individuals can also set questions for each other to solve.

Though we stressed the importance of setting tasks for the learning partners to work through, the real content of this strategy is the language-intensive working through of learning material in a context of co-operation, encouragement and support (Martin et al, 1976). The affect of the experience is its main effect. Clearly the learning partnerships place great emphasis on the learning process, and take some of the tension away from it (Robinson, Sabetryon and Griffin, 1985). There is also a heavy emphasis on language, here oral rather than written, so that students talk through their difficulties and make sense of subject matter in the language of everyday speech. This has, we believe, particular importance for female learners whose silence in the traditional classroom has been of such concern in this research.

The teacher encourages the partners to find other ways to offer each other help, while ensuring that the major areas of evaluation are still individual enough to validate self-sufficiency, not dependence. The support which female learners offer each other in these partnerships is an essential component of the pedagogy. The solidarity which they experience through this means can, we believe, help them deal more effectively with those feelings of powerlessness and invisibility which can so

insidiously interfere with fulfillment of potential. In this sense, then, support leads to increased independence, not dependence.

3. Using Writing in the Learning Process

We must emphasize here that we called this strategy writing to learn, not learning to write, though it is true that the more students use written expression the greater will be their fluency in that medium. However, fluency in and of itself was not our primary objective. We saw that as falling principally within the expertise of teachers of English and francais and we recognized the specifics of their methodology. Further, we did not want to burden the non-language teachers with the full responsibility for the literacy problems of their students, nor did we wish to provide students with an additional check on their expression. In fact we believe that write-to-learn exercises MUST NOT be corrected or critiqued by the teacher. If such correction takes place, the student is penalized for taking risks, trying out ideas, and expressing confusion, all of which are parts of the exercise. We suggested that a write-to-learn component in any course be assigned a fixed number of marks, which could be as little as five or ten, and that the students be given the marks if they do the writing. The writing should be valued but it should not be critiqued, or the student will obviously try to please the teacher rather than use the writing as a way to learn.

Given that women do not participate as fully as men in the

oral discourse of the traditonal classroom, some methodology must be put in place to give them equal opportunity to take possession of their own learning. We believe that writing-to-learn exercises help to equalize the language experiences of male and female students.

The overall objectives are to empower the students as active participants in the learning proces, to incorporate a learning method which seems more comfortable for female students, and to help students integrate learned material into their own thought processes. Teachers are asked to assign short pieces of writing in which learners articulate what they already know about subjects to be covered in class, what they have not understood about what has been covered in class, how they feel about the subject matter, what connections they see between different areas of course content, and so on. Articulation in language can help students make their own connections with what they are learning. It can help them make sense of things, and to recognize when they cannot do so. Short writing-to-learn assignments encourage the integration of course content into the students' own thought processes in gradual non-threatening ways.

In this area of our pedagogical design, the work of progressive educators in Literacy Across the Curriculum has been particularly useful. Toby Fulwiler (1981) and Ira Shor (1987) have shown how students make sense of their education through frequent and shared experiences in writing to learn. Based on our study of their work, plus our interviews with the teachers, we

arrived at four specific applications of writing to learn: five-minute free writes, journals, collective class logs filed in the library, and the question and answer box.

Five-minute free writes are periods of intense and unedited thinking expressed on paper. Students are instructed not to lift their pens or eyes off the page, and to trust that the ideas will come. If they cannot find ideas, they are to express that fact and wonder about it. The teacher should write, too, to validate the process, and should be willing to share her/his writing on occasion. Free writes can be used at the beginning of a class to engage students, at any point in a class to find out problem areas, track down misconceptions or help form a bridge between one topic and the next, or at the end of the class to help students summarize and consolidate material. A simple topic should be given, most usefully in the form of a question.

Journals have been much used by feminist educators to help students make connections between affective and cognitive experiences (Bunch and Pollack, 1983; Culley and Portuges, 1985; Walden, 1988). They have also been highly recommended by progressive educators for facilitating learning (Fulwiler, 1981; Shor, 1987). The journal requires students to reflect on what they are learning. Students write reactions to what they are assigned to read, reactions to class lectures, reactions to media presentations. They can also be asked to deal with course content in purely cognitive ways, for example, by writing paraphrases of sections of text (50-word paraphrases, 200-word paraphrases),

précis of lectures, chapter outlines of a reading in the text, lecture outlines of the teacher's lectures, and so on. We indicated to teachers that notebooks per se are inadequate for this purpose, for though taking notes does help students concentrate, we do not believe it forces them to think.

Journals present a much heavier use of writing than the free writes and we recommended careful thought about the workload for student and teacher. We did share our belief, however, that journals are immensely valuable for helping students to keep on top of their reading and to reflect on it, for helping them to pay attention in class, for actually bringing them to class in some cases, and for helping teachers find out what is working and what is not.

It is extremely important that the journal be given some mark value but that it not be corrected or critiqued. Marginalia is appropriate if the teacher has time, but it should be of generally encouraging nature. Real errors in reading or understanding should not be dealt with in directive comments in the journals themselves: the teacher might go back over the material again in class, or ask students to go back over their journal entries themselves, after class discussion, and to make comments on their own new understandings.

A collective class log is designed to create a sense of community, especially in courses where the pressures of covering course content make it difficult to create that kind of relaxation in the actual classroom. Students are instructed to

write at least a page, once a week, on some matter related to the course, whether it is their success in debugging a program, their difficulty with a lab, something they read in the newspaper that seems course-related, some reaction to a classroom situation, and so on. This page of work is filed in a binder, in which each student has a section, and which is filed in the reserve section of the library. We recommended that students' real names be used, not the alias as described in the biology experiment. We felt that an open personal exchange between students was both possible and desirable. Students are encouraged to read each other's work and to respond to it if they wish. Dialogue can thus begin, and this subject-talk can help students feel comfortable with the learning which they are pursuing elsewhere in more structured ways. We predicted that timid female students would particularly appreciate this opportunity to exchange ideas without having to assert themselves in class.

The question and answer box requires students to write, once a week, one full page describing the exact nature of a difficulty they are having with the course or a particularly interesting idea or solution they have found. Articulating the question is particularly important: the process of putting the problem into words offers the students an opportunity to discover what it is they do not know or have not learned; sometimes the process can even permit them to discover their own answer. These articulations allow the teacher to see exactly where the students are in the learning proces, and to make very simple individual

interventions, or to take student questions as starting points for review classes. Student answers for the question and answer box could also be shared with the class.The question and answer box is designed to help students feel more comfortable about posing questions about their learning. It is also intended to create a much closer relationship between students and teacher, and allows the teacher to demonstrate in a really practical way how interested s/he is in the students' learning.

4. Collaborative Course Units

Because of the many difficulties described to us by the teachers we interviewed with respect to student group projects, we decided to present only one very carefully described and directive model for this strategy. We avoided calling it "group projects" because of the possible confusion with peer support partnerships, and because we wished to avoid any suggestion that individuals were to be sacrified to the group. We suggested that any collaborative project in which more than three students worked together for specific learning or project goals be very carefully orchestrated to ensure that tasks are done, individuals are validated, and groups really co-operate.

What we presented was an integrated reading, writing, student-initiated co-operatively organized and presented course unit, in which there is group reward and individual accountability. The objectives of the strategy are to empower students as active participants in the learning process, to

democratize the classroom, and to build a sense of community. The teacher is asked to choose a section of the course to which s/he is willing to devote about three weeks of class time plus prior reading time for students and a period of writing time, after group work is completed, for individual assignments. This could be one thematic unit, one section of a text, one novel, one play, etc. Students are asked to read in advance of the starting date, and they are required to keep a reading journal of about six sensibly spaced entries on their reading process: reactions to the material, questions, interpretations, connections with the rest of the course, and so forth. These entries are checked off but not corrected.

At the start of the class unit, the students bring their journals and use them in order to present a list of topics which they think would be essential to cover this particular unit, or which they think would be interesting ways to approach the material. The students are then organized in groups of about four (often two dyads are used) and each group is then assigned to organize a list of topics which represents the interests and concerns of the group. The teacher then uses these lists to produce a class list of topics which will allow the class to cover the unit adequately. Each group then chooses a topic area, with the teacher acting as a referee in the bargaining process.

Each group then meets to subdivide the reasearch for the topic. Each individual must have a task that is meaningful, requires a reasonable and equitable amount of work to research,

can be written up, and will add something to the group. The teacher must therefore monitor the division of labour quite carefully. Individuals should work outside of class. However, it helps to devote some class time to discussion of progress and decisions on how to present the material. It should be stressed that the reading of notes is deadly dull.

As each group presents, the rest of the class must have something of some significance to do with respect to the material presented. This might involve evaluation, using criteria established and agreed on by the class as a whole. It could also involve the making of notes for later use in the study and mastery of the material. Students can also be asked to make up questions to quizz the presenting groups.

After the presentations, each individual must write up her/his part in some specific way, in order for individual accountability to be given a meaningful role. This, like each of the other steps in the collaborative process, should have clearly designated mark value assigned to it. We recommended that the largest number of marks be assigned to the presentations and the writing, but that journals, topic lists, evaluations and so on be given at least one mark each.

III. METHODOLOGY

A. Preparation of Teachers for the Experiment

From the outset, it has been clear to us that no valid test of these teaching strategies could be made unless teachers were committed to a sustained, well-informed practice of the pedagogy throughout the semester. We therefore invested considerable energy in helping teachers decide upon strategies and to understand the theoretical framework behind the research.Our first meeting with the 23 teachers who had agreed to participate in the project was held at Dawson College on November 30 (Appendix 4). We made certain that the first part of the evening provided time for teachers to meet one another and to discuss informally their interests and concerns. This initial time period also enabled us to welcome them individually to the project and to express our pleasure with each person's participation. We then proceeded to a bilingual presentation of the theoretical background of the research and an outline of the basic strategies. We also gave each teacher an outline of the material described in section C above. We called this outline Propositions Préliminaires or Draft Outline of the Strategies (Appendix 5). Teachers were invited to ask questions and raise concerns. Connections between the feminist theory and the teaching strategies provoked considerable interest and discussion, as we had hoped. Teachers were invited to contribute suggestions for improving the package as well as to select two strategies they

would be willing to test. Each teacher was linked, by subject, with one of the researchers, and they were asked to communicate with us before the Christmas break.

As it turned out, no teachers suggested changes to the package, and so we adopted the draft as it had been proposed. A number of informal meetings with small groups of teachers took place in the month of December, as teachers considered our proposals and selected the strategies they wished to test. These meetings underlined for all of us the importance of discussion and personal contact among teachers embarking upon a pedagogical experiment. What began to happen among the teachers was what we hoped would begin to happen among the students: a language-intensive integration process of new ideas into already well-formed and individualistic frameworks of thought. We saw this as very much connected with our theoretical framework for feminist pedagogy, wherein individuals learn together as colleagues, respecting differences among each other. Much of what was said to us informally by these teachers as they prepared their course outlines helped us later in explaining and expanding the pedagogy in future workshops.

Hands-on workshops were conducted in French on January 12 at Vanier and in English on January 16 at Dawson. A supplementary workshop was held on January 20 at Vanier to ensure that no one missed the experience (Appendices 6, 7). On these occasions, we used the strategies to deal with the concerns that teachers might still have about the project. We began by asking each teacher to

submit a question about the project for the question and answer box. This question was collected during the first few minutes while participants were having coffee. We then began our actual work with the group, asking them to do a five-minute free write on the differences they had observed between male and female learners in their classrooms. This allowed us to remind them of how this strategy works, and what to say to students when introducing it. After the writing was complete, we asked each person to contribute an idea, modeling thereby one way to use free writes in the classroom. We then proceeded to present to them what the research on this question of gender difference in learning has to say, and how closely this research rejoins their own experiences.

We introduced the next part of the workshop with another free write, asking the teachers to outline one way in which they hoped to use dyads (or some other strategy) in their particular course during the upcoming semester. After this writing, we asked them to form dyads with a teacher in a similar discipline, to discuss their writing, and to prepare for the group as a whole one particular problem they could envisage in the use of dyads in the learning process. After a certain period of discussion, we heard these reports, and tried to deal with the problems they saw. We concluded the workshop by quickly going through the question box to see if there were any questions not yet resolved. We also presented each teacher with the materials for testing student attitudes in the first class of the semester.

Our contact with these teachers continued throughout the term. We distributed teacher phone numbers and encouraged them to contact one another. We called them together for a mid-term progress discussion on March 15, where we facilitated an information exchange on how the process was working (Appendix 8).

Throughout our work with the teachers we have acknowledged that some of them share our feminist persepctive and many of them do not. We were never concerned with this philosophical question. We wished instead to communicate the spirit of the pedagogical principles through our behaviours with the teachers, and to help them engage in new kinds of interactions with their students. Only three teachers did, for personal reasons, withdraw from the project, while twenty continued the demanding experiment they had agreed to conduct. These twenty teachers also kept extensive records for us, and gave us lengthy and significant interview time while they were still very busy marking final papers. We feel this commitment by the teachers is in itself a statement about not only the importance of this pedagogical development but the importance of devising an experiment that is teacher-centred and teacher-active. The preparation and involvement of the participating teachers, by means of workshops and meetings, printed materials and ongoing resource contact, played an essential role in helping teachers integrate and also enrich the feminist pedagogy.

B. Intervention

The experiment consisted of a full semester of classroom testing of the pedagogical strategies whose content was described in Chapter II. The reader will recall that these fell into four categories:

Systematic Self-Disclosure

-- During class discussion/lecture

-- In written response to student writing

Peer Support Groups

-- During class or lab time

-- Out of class

Writing-to-Learn Strategies

-- Five-minute in-class free writes

-- Individual journals/learning logs

-- Collective class log

-- Question and answer box

Collaborative Course Units

C. Hypotheses and Discussion

In framing the problem for this project, reference has been made to a wide range of existing literature which combines to suggest that, despite egalitarian intentions by teachers and institutions, and despite the fact that female students' actual grade performance is at least as high as males', there may nonetheless be important ways in which traditional pedagogy fails to meet women's needs or to captivate their interest.

The distinctive educational career patterns of women, including disproportionate dropout rates, underrepresentation at higher levels, and concentration in traditional fields, were interpreted as being, in part, manifestations of this failure of traditional pedagogy.

In seeking to understand the causal dynamics of this problem, we drew upon a body of theory and research which indicated:

--that for any student in any discipline, the act of working through ideas in the language of everyday speech plays an essential role in the learning process,

--that in a traditional classroom, women in fact speak less frequently and thus have less opportunity to do this kind of exploring of ideas "in their own voices",

--that women students prefer and benefit from learning situations which stress co-operative and mutually supportive, rather than competitive, modes of interaction,

--that for women, as indeed for any marginalized group, the inclusion and validation of their personal experience as a legitimate area of intellectual inquiry can be an important element of engagement and empowerment,

--and that women students may be more comfortable with approaches in which the affective and intuitive dimensions are included and integrated with cognitive and rational treatment of course content.

Furthermore it has been advanced that to address the above

issues, a feminist pedagogy could be guided by the principles of humanizing and democratizing the classroom, empowering students as active learners, and creating an atmosphere of mutual respect. support and trust.

On this basis arose the central hypothesis of the present research. This is that feminist pedagogical approaches which incorporate all these elements, such as the interventions listed in section A, would increase female students' comfort and engagement with their studies, and thereby would produce more confident, active and effective learning.

Specifically, it was hypothesized that feminist pedagogy would improve:

H1: women's self-esteem

H2: women's interest in and liking for subject matter and attitude and commitment to higher education in general.

H3: women's performance

In the long term of students' educational careers, such a constellation of effects should in turn help to reduce the phenomenon of women's "abandonment" of education, which is manifested in many forms such as dropping out of an individual course, transfer out of a programme or discipline (usually to a more traditional area), and decision not to continue to the next level (for example, from CEGEP to university.) The current project measured the short-term effect on one small part of this dropout phenomenon, namely the rates of withdrawal, in one semester, from the experimental and control classes under study.

and hypothesized a lower drop rate in the experimental groups. The element of students' desire and intention to continue their studies was also included in the quantitative data obtained by student questionnaires.

The question of performance was involved in a rather subtle way. On one hand, making students more confident, committed and personally involved in their education would be expected to improve performance, both in long-term achievement and possibly even by short-term criteria such as grades. On the other hand, in the present analysis the essential problem of women's educational pattern is not one of failure or low performance, but rather one of abandonment. Improving their grades will thus not, of itself, help to solve this problem. The present study therefore compared final grades and failure rates of experimental and control groups, but considered the comparison to be of secondary importance.

There was no formal hypothesis regarding the effects of this pedagogy on male students. However, informally it was expected that many male students could experience similar benefits, most especially if they belonged to socioeconomically, ethnically, or otherwise marginalized groups.

D. Subjects and Controls

The participants were 20 teachers from Colleges Dawson, Edouard Montpetit, Montmorency, and Vanier, who had each agreed to apply at least two of the proposed strategies in their

teaching for the semester H89. They had been selected to represent the disciplines of sociology, physics, Language and Literature (French and English), Computer Science, and Early Childhood Education.

We shall refer to these participating teachers as "experimental teachers", and to those student groups who were exposed to the feminist pedagogical strategies as "experimental groups." Most of the experimental teachers also taught another class section, called a "C1 control", in which the feminist strategies were not used. Furthermore, in most cases there was a second kind of control group, referred to as "C0 controls", taught by different teachers and using conventional pedagogy.

The professional programs posed a special challenge regarding control factors. Not only are they often very small, thus providing a smaller field of potential participants, but in a given semester most courses are offered in only one section per CEGEP (sometimes even per city). In such cases C1 controls were by definition not possible. Because of both its societal importance and its particular pedagogical features, we felt that it was essential to include the professional stream in our research, and succeeded in arranging for C0 control groups in other CEGEPs.

All controls were carefully matched to the experimental groups for course and student population, usually within the same CEGEP. In the cases where the course number itself was not the same, the groups were matched for discipline, course level,

content area, and type of student.(Examples of the latter were first-year versus second-year students, regular stream versus remedial, and students who had chosen their concentration in this discipline versus those just taking an obligatory course.)

The chart on the following pages gives the breakdown of disciplines, methods tested, and control groups.

Figure 1. Breakdown of participants by discipline and strategies.

DISCIPLINE	TEACHER	METHODS TESTED IN EXPERIMENTAL GROUP	CONTROL
Language and Literature	LL 1	Verbal self-disclosure; journals.	C1 and C0
	LL 2	Self disclosure in responding to writing; peer support dyads in and out of class.	C1 and C0
	LL 3	Verbal self-disclosure; peer support dyads in and out of class; collective class log; collaborative course unit.	C1 and C0
	LL 4	Peer support dyads in and out of class; five-minute free writes; question and answer box.	C1 and C0
	LL 5	Verbal self-disclosure; self disclosure in responding to writing; journals.	C1 and C0
	LL6	Verbal self-disclosure; peer support dyads in class; five-minute free writes.	C1
	LL7	Verbal self-disclosure; self-disclosure in responding to writing; five-minute free writes; collaborative course units.	C1 and C0
	LL8	Verbal self-disclosure; peer support dyads in class; journals.	C1 and C0
Sociology	SOC 1	Peer support dyads in and out of class; five-minute free writes.	C1
	SOC 2	Peer support dyads in class; five-minute free writes.	C1
	SOC 3	Verbal self-disclosure; peer support dyads in class; five-minute writes.	C1
Computer Science	CS 1	Peer support triads in lab; question and answer box.	C1 and C0
	CS 2	Peer support dyads in and out of class; five-minute free writes.	C0
Early Childhood Care	ECC 1	Verbal self-disclosure; self-disclosure in responding to writing; peer support dyads in and out of class; question and answer box.	C0

DISCIPLINE	TEACHER	METHODS TESTED IN EXPERIMENTAL GROUP	CONTROL
	ECC 2	Peer support triads in class; five-minute free writes.	C0
	ECC 3	Peer support dyads in and out of class; collective class log.	C1
Physics	PHYS 1	Verbal self-disclosure; peer support dyads in lab time; question and answer box.	C0
	PHYS 2	Verbal self-disclosure; peer support dyads in class; question and answer box.	C0
	PHYS 3	Verbal self-disclosure; peer support dyads in lab time; question and answer box.	C0
	PHYS 4	Self-disclosure in responding to writing; peer support dyads outside of class; five-minute free writes.	C1 and C0

E. Quantitative Assessment

The following quantitative measures were used:

For each student (experimental and control):

-- Coopersmith scores (six scales, pre- and post-experiment)

-- Final grade in the course;

-- School Attitude and Commitment Questionnaire (pre-and post-experiment);

For each class section (experimental and control):

-- Percentage of dropouts;

-- Percentage of failures.

The original proposal to measure attendance rates proved undesirable for a number of reasons, including the feeling of some teachers that, at the college level, taking attendance in itself had a negative effect on class atmosphere.

There was considerable investigation of suitable instruments to measure students' self-esteem and attitudes. For self-esteem, we chose the Coopersmith Self-esteem Inventory (Coopersmith, 1981) as the best available for our purpose. This is a standardized psychological test, widely used and thoroughly reviewed in the literature. It was also important that it was available both in English and in French (Coopersmith, 1984.) The CEGEP student population falls within the age ranges of both the adult and the school versions of the Coopersmith. We opted for the school version because it had been more extensively validated (on several thousand subjects), is more appropriate to the

concerns of students, and contains a subscale for academic self-esteem. The other subscales are the Social self (Peers), the Home (Parents), the General self, the Short and the Lie scales.

Final grades, failure rates, and two kinds of dropout rates were collected for all groups. The first definition of dropout rate was the percentage of official withdrawals (AB) as recorded in the final grade sheets. This method of calculation had two advantages: First, it was consistent across all teachers and CEGEPs involved. Secondly, it was based on registration lists as updated after the course change period, and thus largely avoided including the "phantom" students who disappear from a class section in the very first few days of the semester, before they could really have been affected by a particular pedagogical method. This first calculation will be referred to as the "AB rate."

However, a certain number of students drop out of courses at various times in the semester without ever going through the official withdrawal procedure. Depending on the teacher, the programme, and the circumstances, such a student's formal record may show a grade of zero, a blank, an "Incomplete", and so on. Although there are many reasons involved, most cases are bound up with problems of absence, discouragement, or lack of interest and motivation, and as such are connected to the generalized "drop" phenomenon we wished to examine. Thus we defined this group as a special category called "Miscellaneous Disappearances", and produced separate statistics for the "MD rate."

For related reasons we felt, as many teachers do, that the MD's should not be counted as failures nor included in the average grade of a class or group. Thus failures were defined as grades from 1 to 59, and class averages calculated using grades from 1 to 100.

The remaining elements to be measured were interest in, liking for, and commitment to subject area and to higher education in general. For this purpose a new questionnaire was designed, after extensive search had suggested that no appropriate standardized tests existed. We had consulted several members of the McGill Faculty of Education, two psychologists, several other researchers in areas related to our own, Hélène Lavoie of DGEC, and a consultant specializing in educational research. A large number of tests had been considered, including the School Motivation Analysis Test (Krug, Cattell, and Sweney, 1970) and instruments used by the Québec Ministry of Education, and by Catherine Gilbert and Diane Bateman of Champlain College. The conclusion of these investigations was that no available instrument was appropriate to the age of our population, the range of disciplines under study, and the precise features we wished to measure.

Thus the decision was made to construct a questionnaire very specifically addressing the needs of the present research, and drawing in part upon the other tests we had examined. This will be referred to as the SACQ (School Attitude and Commitment Questionnaire), and is included in Appendix 9. As recommended by

our statistician, this questionnaire has a binary scale in order to allow meaningful statistical analysis. The identification of discipline/programme was varied according to the student group involved. Both French and English versions of the SACQ were pre-tested in December 1988, on a separate sample of CEGEP students in science and social science programs, and yielded an acceptable distribution of responses.

A fundamental part of the experimental design was the comparison of each student's "pre-test" and "post-test", that is, his/her Coopersmith and SACQ scores before and after the course. In order to have pre-test scores unaffected by the pedagogy to be tested, the pre-tests were administered at the beginning of the first class period, even before the teacher began to describe the course. This naturally entailed some reduction in the size of the sample studied, since there is considerable shifting of students into and out of any particular course section in the first week of the semester. However, it was considered essential that the pre-test provide unbiased baseline values.

The factors of interest in this experiment were the intervention itself (i.e. feminist pedagogy versus control group), the sex of the student, and the discipline or subject area.

Analyses of variance were used to examine the effects of these factors on each quantitative measure, as well as possible interactions among them. Details of the statistical analysis are given in Chapter IV.

F. Sources of Qualitative Data

Qualitative information was used to complement and help interpret the quantitative data, both to test the hypotheses and to illuminate more fully the pedagogical process involved. This information was gathered from interviews of participating teachers, from teachers' written records, and from a variety of material written by the students.

In-depth interviews were conducted with all experimental teachers at the end of the semester. Each teacher was asked to describe and evaluate the ways in which the feminist strategies were used throughout his/her course, the students' reactions, possible gender-related patterns, practical difficulties, positive and negative effects. Particular emphasis was placed on class atmosphere and interactions, and on the quality of student learning, which is a deeper and more complex phonomenon than can be entirely represented by a numerical grade. The interview schedule, included in Appendix 10, served as a flexible framework in which to hear teachers' observations and comments.

The interviews were supplemented by written records of several kinds. All experimental teachers had been supplied with tally sheets on which to record, week by week, exactly how each method was applied and the teachers' own comments on the effects. Appendices 11 -16 contain the various kinds of tally sheets which we supplied. Many teachers went beyond the basic recording and gave us extensive comments, as well as samples of assignments and

printed materials they had given out to their classes. Many also provided samples of students' written work produced as part of the methods under study, such as interesting journal entries, questions submitted to the Question and Answer Box, and copies of the collective class logs. At our suggestion, a number of teachers invited written evaluation by the students of certain strategies, and provided copies to the research team.

Finally, a few open-ended questions, to be answered in students' own words, were added to the questionnaires completed by all students (experimental and control) at the end of the course.

From all this descriptive material there emerged a portrait of what was happening in these classes, in a dynamic way which could not be conveyed by numbers alone. This picture formed an invaluable background against which quantitative data could meaningfully be interpreted, as well as providing insights into teaching and learning process which can be used to enrich and improve the pedagogy for future practitioners.

G. Supplementary Discrete Data

Along with the pre-test questionnaires, extra information was also gathered about a number of features of the sample population on which we might wish to do other analyses at some future date.

For example, it could be interesting sometime to consider the role of teacher gender in the effectiveness of this pedagogy,

or the question of whether ethnic background or socioeconomic group could be an additional factor in the effects of student gender. Since the data was stored and identified by student number, there was also the possibility, in a future research project, of tracking some of this student sample over several years.

Thus for each student we have maintained a record including, among other things, age, previous academic average, ethnic group, mother's and father's occupations (as indicators of socioeconomic group), teacher and methods tested in the present study, and language of CEGEP instruction.

IV. QUANTITATIVE DATA AND ANALYSES

A. Preliminary Information

In order to permit more powerful kinds of analysis, we decided, first, that whenever possible, data would be gathered as individual student records rather than aggregate group statistics such as class averages or rates; and secondly, that each measurement would be made at the beginning and end of the semester wherever it was meaningful to do so. Thus for the Coopersmith and SACQ scores, the main analyses were carried out on the change in score, from pre-test to post-test, for each student.

This necessarily involved restricting the analysis to those students who wrote both the pre-test and the post-test. Thus the sample was considerably reduced by the combined effects of students' errors in writing their student numbers, individual students' absence from class on the day of testing, and the normal shifting of students in and out of particular course sections.

There was further reduction of the sample due to the withdrawal from the study of three experimental teachers and several CO control teachers. Finally there were approximately thirty students who appeared in more than one class within the study. Their records were removed from one group or the other, both in order to have disjoint group populations for statistical analysis and to ensure that students being exposed to the experimental treatment in one course were not being included as

controls in another course.

The original pre-test of the Coopersmith and SACQ was completed by 1755 students and the post-test by 1203. The final group, on which all subsequent analysis of these tests was done, contained 943 matched and complete student records. Thus the combined effect of all the above factors was to reduce the original sample but to render it more reliable for tracking and analysis.

The data on grades and dropouts was gathered for every student appearing in the official class lists at the moment when final grades were submitted. This will be referred to as the "grade sheet population" and contained 1646 students. It was of course not practical to require that this group of records be matched with both pre- and post-tests, since doing so would automatically eliminate the students who had dropped out. Rather the analysis for class averages, dropout rates and failure rates was carried out separately using the grade sheet population. Analyses for the factors of experimental treatment and discipline were done on the full 1646 records.

To do analyses involving sex required that the student number be matched with the pre-test records to obtain the gender information. Approximately one third of the records (561) could not be so matched, because students had not been present to write the pre-test or had errors in their student numbers. Since most of these difficulties had involved non-Vanier students, the decision was made to examine a subpopulation consisting of Vanier

students for whom gender information was available. This group of 922 students was used as the basis for all grade related analyses involving sex. We also performed the other analyses, by experimental treatment and topic, again on this subpopulation in order to trace particular effects through higher dimensions of analysis.

For practical reasons the full results of the statistical analyses, which run to hundreds of pages of computer listings, are not appended to the present report. However, this data is available on request.

The following codes and terms will be used in the discussion which follows and in the accompanying tables:

--The change in value from pre-test to post-test is denoted in the tables by "DELT" when it is not referred to as changes.

--The factors of discipline (subject area), sex and experimental treatment status are represented in the tables by the terms TOPIC, SEX AND EXPTYP respectively. Experimental states have the symbols EX for experimental; C1 (control group taught by experimental teacher); and C0 (control group taught by a different teacher). The name of each discipline is abbreviated to its first three letters.

--The scales of the Coopersmith Self-esteem Inventory are abbreviated as GEN for General self-esteem, SOC for Social/Peers, H for Home/Parents, SCH for School/Academic, L for Lie scale, and SHORT for the Short score. Thus for

example DELTGEN denotes the change, from pre-test to post-test, in the General self-esteem score.

--Questions of the SACQ are referred to by number, which for practical reasons begin at number fifty-nine. The average grade appears in the tables as MARK.

B. Coopersmith Self-esteem Inventory

Of the six Coopersmith scales, the ones of primary interest in this experiment were the General scale (GEN), which is in a sense the overall test score, the Short (SHORT) and the School (SCH) scales. Analysis was carried out on each student's changes from pre-test to post-test, in each of these scales. In this way the pre-test acted as an internal control for the post-test (paired analysis).

First, however, preliminary analysis was carried out on the pre-test scores themselves to identify any important patterns within the sample population. These were the same kinds of analysis later performed on all the types of quantitative data, namely one- to three- dimensional analyses of variance with respect to the factors of experimental treatment, discipline and sex.

Pre-test of the Coopersmith

One-way analysis of the pre-test revealed significant effects by sex which appeared to confirm one of the premises of the present research, that is, that women students may have lower

self-confidence than men. Indeed, male students scored higher than females on the General and Short scales, at the levels of p=.009 and p=.038 respectively. Tables 1 and 2 give the details.

Table 1.
Means and counts of GENERAL SCORE by SEX

F	M	
19.10	19.87	p=.009
(570)	(373)	

Table 2.
Means and counts of SHORT SCORE by SEX

F	M	
17.02	17.66	p=.038
(570)	(373)	

Taking into account the topic and the sex factor, we had to drop the Early Childhood Care subgroup (only female students) in order to test third order interactions. The same trend appeared in the three-way analysis, but was not significant there (p=.063 and p=.103). We must therefore infer that the sex effect was not valid.

There were highly significant effects by topic (discipline) on the General, Short and School scores. Partial results of the two-way analyses by topic and experimental state are shown in tables 3, 4, 5.

Table 3.
Means and counts of GENERAL SCORE by TOPIC

PHY	INF	SOC	ENG	FRA	ECC
20.34	19.75	18.01	18.92	20.86	18.68
(188)	(84)	(144)	(358)	(57)	(66)

Table 4.
Means and counts of SHORT SCORE by TOPIC

PHY	INF	SOC	ENG	FRA	ECC
18.22	17.27	16.72	16.65	19.44	16.56
(188)	(84)	(144)	(358)	(57)	(66)

Table 5.
Means and counts of SCHOOL SCORE by TOPIC

PHY	INF	SOC	ENG	FRA	ECC
4.87	4.30	4.37	4.35	4.96	4.92
(188)	(84)	(144)	(358)	(57)	(66)

There we note that français had the highest mean on all three scales, and that Early Childhood Care had the lowest means on both the General and Short scales, but was second highest on the School.

No other significant results were found in the Coopersmith pre-test, with the exception of one complex and not readily meaningful interaction of experimental status and topic, which occurred for the first time in the three-way analysis.

Pre-test to Post-test Changes in the Coopersmith

There were no significant effects of experimental treatment,

sex or discipline found in the one-way analyses of variance.

In the two-way analysis by experimental treatment and sex, two results emerged: First, there was an effect by sex on the "Home/Parents" H scale, with males showing a more negative change and females a positive one, as seen in Table 6. The effect was significant (p=.04).

Table 6.
Means and counts of CHANGES IN HOME SCALE by SEX

F	M	
+.08	-.16	p=.04
(547)	(355)	

Although not bearing on our hypotheses, this is a rather interesting result, more readily interpreted by examining the specific questions on the Coopersmith which are scored for this scale. Most of them, in fact, ask for the student's perception of how parents or family treat him/her (for example: "My parents usually consider my feelings."). It seems reasonable to suppose that for males of college age, seeking greater independence and also experiencing an increase in parental pressure to succeed academically, the space of one semester might be enough to register some movement towards dissatisfaction with their families.

Secondly there was an interaction of experimental treatment and sex on the Lie scale, again not highly significant (p=.041). As seen in Table 7, female experimental subjects showed the

greatest decrease in Lie score (from pre-test to post-test), while male C1 controls and female C0 controls showed the greatest increase.

Table 7.
Means and counts of CHANGES IN LIE SCALE by SEX and EXPTYP

	SEX		
	F	M	
EXPTYP			
C0	+.25	+.04	
	(168)	(98)	
C1	-.15	+.26	p=.041
	(141)	(96)	
EX	-.19	+.09	
	(238)	(161)	

Since the Coopersmith lie scale is designed to detect primarily false positive (high self-esteem) responses, it is tempting to speculate that feminist pedagogy could have made females slightly less afraid of acknowledging negative truths. However, in view of the relatively low significance and the lack of visible pattern clearly distinguishing experimentals from both types of controls, it seems safer to treat this result with suspicion unless it can be replicated.

Contrary to the formal hypothesis for the experiment, there were no other significant effects or interactions revealed by the remaining two- and three- way analyses of variance.

Close examination of the Lie scale effect and certain other sets of means led us to question whether the C1 and C0 controls were in fact showing equivalent results. To test this query, the

full series of analyses were run twice again using pairs of experimental states rather than all three states. The first such comparison was between C1 and C0 controls, and tended to indicate that these two groups were equivalent, except for a sex related interaction on the Lie scale. The second involved the experimental and C1 groups, and found basically no significant difference, except for a factor effect of sex on Lie scale similar to the one seen in the original series.

Some preliminary discussion of these largely null results appears in Section E.

C. School Attitude and Commitment Questionnaire

The complete SACQ, consisting of 28 questions, may be found in Appendix 9. The questions were conceived in groups, each intended to measure a particular feature. One important group, including questions 60, 64, 71, 72, 78, 86 addresses liking for and interest in a discipline, and is epitomized by question 82: "<Name of discipline> is an interesting subject." Questions 76 "I probably will go on with my education to the end of Cegep" and 59, 62, 69, 70 and 77 are concerned with the student's desire and intention to complete at least the educational level she/he is presently attending. Questions such as 79: "I really want to continue my education and obtain a bachelor's degree", 66, 73 and 83 are intended to measure varying degrees of commitment and desire to continue to higher levels in the educational system.

The most striking feature of the SACQ data was that topic

(discipline) had strong effects, almost all of which continued to be seen even in the two- and three- way analyses, that is, even when the other factors of sex and experimental treatment had been taken into account. In fact, many of the seemingly significant effects of the other two factors were revealed by the higher-dimensional analyses to be only the hidden effects of topic. This leads us to the other striking feature, which is the relatively small number of significant effects or interactions which appeared at all, and the even smaller number which touch on the experimental hypotheses.

We now proceed to the detailed examination of the questions which elicited statistically significant results, beginning with those most closely related to the hypotheses. First, however, a word of caution: We will be examining the significance of each SACQ question separately, using the conventional criterion of "p" less than or equal to 0.05, "p" being the probability at which the null hypothesis, based on no differences between groups, will be accepted. Thus, given that we have run a large number of analyses upon 28 questions, there is a possibility that some results may simply be attributable to the effects of chance.

1. Effects Involving Experimental Treatment

Three questions initially showed significant one-way effects by experimental status, and several more involved effects or interactions which appeared for the first time in the two- or three-way analyses. However, most of these disappeared in the

three-way analysis, that is, when topic and sex were taken into account. Thus we deduce that in these cases the one-way effects did not represent valid phenomena but rather the results of confounding factors, often of topic.

It should be noted that, except where specified otherwise, analysis by experimental status refers to the three possible states: control 0 (C0), control 1 (C1), and experimental (Ex). Thus a significant effect involving experimental treatment simply means that there were some significantly non-random differences among these three groups, not necessarily between experimental and controls.

Question 60: "I usually enjoy my classes in [name of discipline]."

No level of analysis showed any significant factor effect by experimental status, nor any interaction involving experimental status.

In the two-way analysis by experimental treatment and discipline, there was a "main effect" significant at .036. This effect meant that there were some signficant differences among the 18 subgroups (six topics by three treatments) but not attributable to either factor. The details are shown in table 8 where we see that students of français in both experimental and C1 groups showed the greatest amount of movement toward agreeing with the question, while physics C1 and Computer Science C0 groups had moved furthest toward disagreeing.

Table 8.
Means and counts of CHANGES ON QUESTION 60 by EXPTYP and TOPIC

(p=.036)

EXPTYP	TOPIC PHY	INF	SOC	ENG	FRA	ECC
CO	-.02	-.16	-.13	-.03	-.00	-.00
	(50)	(37)	(30)	(112)	(18)	(12)
C1	-.17	-.00	+.08	+.07	+.21	-.00
	(24)	(15)	(50)	(106)	(19)	(20)
EX	-.02	-.14	+.02	-.02	+.28	-.03
	(108)	(22)	(52)	(119)	(18)	(32)

On the whole, the table does not appear to suggest any intuitive interpretation as regards the consequences of experimental intervention as such. In any case, the effect disappeared in the three-way analysis.

Question 64: "I was looking forward to taking this course."

In one-way analysis, this question exhibited a significant effect (p = .015) in which the experimental group was less inclined to agree with the question than the C1 group. This effect can be seen in table 9.

Table 9.
Means and counts of CHANGES ON QUESTION 64 by EXPTYP

CO	C1	EX	
-.04	+.04	-.08	
(249)	(232)	(388)	p=.015

A similar effect remained (p = .020) when sex was taken into account. However, as soon as we controlled for discipline, in two- or three-way analysis, the effect of experimental treatment disappeared. Hence we infer that discipline played the role of a confounding factor, and that the effect of treatment was illusory.

Question 75: "I feel that my courses are strongly connected to my life."

There was a significant effect of treatment in the one-way analysis as shown in table 10.

Table 10.
Means and counts of CHANGES ON QUESTION 75 by EXPTYP

CO	C1	EX
-.08	+.03	-.07
(250)	(232)	(386)

Here one sees that the experimental and CO groups look rather similar in their tendency to disagree with the question, while the C1 group shows some nonsignificant movement toward agreement. This would have been quite a puzzling result were it not for the fact that the whole effect disappeared in higher level analyses where topic was taken into account.

This question also showed a factor effect by topic (discipline) which will be discussed later.

Question 78: "I enjoy watching T.V. shows about subjects related to my [name of discipline] courses."

This question exhibited a factor effect by experimental treatment which was significant at the three levels of the analysis (p = .030 to .039). Here we see in Table 11a that the experimental group has moved most toward agreement with the question. C0 controls show most movement toward agreement, while C1 appears fairly similar to the experimental. The effect might be interpreted as support for our hypothesis (since experimental are more favourable than C0); or alternatively, as an effect of the individual teacher since the same teacher affects the experimental and the C1 students.

In the table 11b, we can examine the interaction between sex and experimental treatment in which male experimental students and female C0 students respond more favourably than female experimental students and male C0 students. This is somewhat surprising in a pedagogical context originally designed to better serve the needs of female students; however, that males might also benefit is certainly not contradictory. Taking this interaction together with the effects of experimental treatment already discussed, it would seem reasonable to suggest that, over-all, experimental students have benefitted, but males have benefitted more than females. To this must be added the caution that the interaction of sex and treatment is at the borderline of the possible range for significance (p = .048) and so its interpretation is doubtful.

Table 11a.
Means and counts of CHANGES ON QUESTION 78 by EXPTYP

EXPTYP			
	C0	C1	EX
	-.05	+.05	+.06
	(243)	(217)	(319)

Table 11b.
Means and counts of CHANGES ON QUESTION 78 by EXPTYP and SEX

	SEX		
		F	M
EXPTYP			
	C0	+.01	-.15
		(151)	(92)
	C1	+.06	+.04
		(119)	(98)
	EX	+.02	+.10
		(165)	(154)

p=.048

Question 63: "My programme allows me to take courses that interest me."

There were no significant factor effects at any level of analysis, and no interactions with discipline.

However, there was a significant interaction of sex and experimental treatment which became highly significant (p = .007) when topic was taken into account. Table 12 shows the means for this analysis.

Table 12.
Means and counts of CHANGES ON QUESTION 63 by SEX and EXPTYP

	SEX		
	F	M	
EXPTYP			
CO	-.10	+.04	
	(154)	(93)	
C1	+.05	+.01	p=.007
	(116)	(98)	
EX	+.05	-.06	
	(163)	(156)	

Female experimental students and male CO control students show the largest movement toward agreement with the question, while male experimental and female CO students have moved strongly toward disagreement. This result tends to support our hypothesis that experimental intervention should improve female students' attitudes toward their education.

Question 73: "I probably will go on with my education to a Master's degree."

No effects or interactions appeared in the one-way and two-way analysis. In the three-way analysis there was an interaction (p = .011) between discipline and experimental state, shown in table 13.

Table 13.
Means and counts of CHANGES ON QUESTION 73 by TOPIC and EXPTYP

(p=.011)

	TOPIC				
	PHY	INF	SOC	ENG	FRA
EXPTYP					
CO	+.12	-.24	-.06	-.00	-.18
	(51)	(37)	(32)	(111)	(17)
C1	+.09	-.13	+.02	-.08	-.11
	(23)	(15)	(51)	(107)	(18)
EX	-.05	+.14	-.02	-.03	-.00
	(108)	(21)	(51)	(119)	(20)

Three of the disciplines appear to have results distinguishing the experimental group from both the C1 and CO groups. In francais and more strongly in Computer Science, experimental students show no change or movement toward agreement with the question, while controls have moved substantially toward disagreement. In physics this pattern is reversed. In English and sociology there were no real tendencies. The fact that these results appear to distinguish the experimental group from both C1 and CO groups tends to indicate that the intervention has had some effect, and only in physics is the tendency in the "undesired" direction.

Question 67: "It is good that all CEGEP students take courses in [name of discipline]." and
Question 77: "I see CEGEP as necessary if I am going to do the work that I want to do."

For these two questions, significant results involving experimental states appeared only in the three-way analysis and were not really of interest. The former showed virtually uninterpretable three-way interaction ($p = .008$), and the latter a two-way interaction of topic and experimental state at $p=.045$, which was borderline and of doubtful meaning.

2. Effects of Sex

There were no significant factor effects by sex on any questions in the SACQ, but there were several significant interactions of sex with other factors.

Questions 63 and 78 showed significant interactions of sex with experimental treatment which have already been discussed. The three-way interaction observed in question 67 is practically uninterpretable and may in fact be random.

Question 73: "I probably will go on with my education to a master's degree."

In addition to the discipline and treatment interaction already discussed, this question showed an interaction of sex with discipline, significant at .001, shown in table 14.

Table 14.
Means and counts of CHANGES ON QUESTION 73 by TOPIC and SEX

(p=.001)

	TOPIC				
	PHY	INF	SOC	ENG	FRA
SEX					
F	-.03	+.04	-.03	+.02	-.20
	(87)	(27)	(98)	(193)	(30)
M	+.06	-.20	+.03	-.11	+.04
	(95)	(46)	(36)	(144)	(26)

One can see a mirror image behaviour of Computer Science, where male students moved strongly toward disagreement (i.e. toward NOT continuing to a Master's degree) and francais, where females did so. English appeared to follow to a lesser extent the same pattern as Computer Science, while physics and sociology displayed no visible tendencies.

Question 85: "A woman would have a lot of trouble making a career in a field related to [name of discipline]."

There was an interaction of sex with discipline (p = .014) revealed by the three-way analysis. Table 15 shows the means.

Table 15.
Means and counts of CHANGES ON QUESTION 85 by TOPIC and SEX

	TOPIC				
	PHY	INF	SOC	ENG	FRA
SEX					
F	+.06	+.03	-.02	+.01	-.04
	(84)	(29)	(92)	(188)	(27)
M	+.01	+.02	-.03	+.06	+.19
	(90)	(46)	(38)	(139)	(26)

Several features can be seen in the table. One is that no groups seem to have moved strongly toward disagreement with the question. Another is the interaction itself. In English, and especially in français, males tended more toward agreement (i.e. toward believing women would have difficulty) than the females. In physics, it was the women who tended more toward agreement, while sociology and Computer Science showed no clear tendency. It is difficult to make strong inferences based on this single question; however, it is interesting that it is the women who appear to be more sensitive to the particular problems faced by women in non-traditional areas.

3. Effects of Discipline

There are six questions which elicit significant factor effects by discipline, and only in one (Question 69) does the effect disappear in higher analyses. The remaining five questions are as follows (probabilities given are for factor effect in the three-way analysis):

Question 60:($p = .048$) "I usually enjoy my courses in [name of discipline]."

Question 62: ($p = .001$) "I feel prepared to take further courses in [name of discipline]."

Question 70: ($p = .028$) "In general, I like being in CEGEP."

Question 75: ($p = .016$) "I feel that my courses are strongly connected to my life."

Question 81: (p = .039) "I think that [name of discipline] is a hard subject to learn."

The values are shown in Tables 16 to 20.

Table 16.
Means and counts of CHANGES ON QUESTION 60 by TOPIC

TOPIC	PHY	INF	SOC	ENG	FRA
	-.04	-.12	+.01	+.01	+.16
	(182)	(74)	(132)	(337)	(55)

Table 17.
Means and counts of CHANGES ON QUESTION 62 by TOPIC

TOPIC	PHY	INF	SOC	ENG	FRA
	-.10	+.07	+.14	+.05	-.11
	(182)	(74)	(132)	(337)	(55)

Table 18.
Means and counts of CHANGES ON QUESTION 70 by TOPIC

TOPIC	PHY	INF	SOC	ENG	FRA
	-.00	+.11	-.03	-.04	-.07
	(182)	(73)	(134)	(337)	(56)

Table 19.
Means and counts of CHANGES ON QUESTION 75 by TOPIC

TOPIC	PHY	INF	SOC	ENG	FRA
	-.13	-.06	-.01	-.00	-.24
	(182)	(77)	(136)	(329)	(55)

Table 20.
Means and counts of CHANGES ON QUESTION 81 by TOPIC

TOPIC	PHY	INF	SOC	ENG	FRA
	+.06	-.03	-.15	-.05	-.02
	(178)	(73)	(128)	(330)	(55)

There do not appear to be any consistent patterns in the way students of a given discipline respond to the different questions, with the exception of physics students who appear generally to have fairly negative attitudes toward their courses and the discipline. It is interesting that no group agreed that their courses were connected to their lives (Question 75).

Interactions between discipline and other factors have been discussed earlier in this section. The effects and interactions involving discipline are the most numerous of the statistically significant results observed. Although there are a few interesting features here, they are often not readily interpretable and in general they appear to have little bearing upon the experimental hypotheses.

To summarize the SACQ data as a whole: There were a few questions which showed significant results that could be interpreted, more or less cautiously, as lending support to our premises or hypotheses. A few others yielded more mixed results or were simply difficult to interpret. However we did not observe very many significant differences which unambiguously supported or even addressed the hypotheses. Nor did there appear to be any obvious patterns of response within groups of questions

which seemed to be closely related in content, such as the clusters of questions around which the SACQ had been constructed. The most noticeable effects tended to be related to discipline rather than to experimental intervention.

D. Grades, Drop-outs and Failure Rates

These three indices are here discussed together because some particularities of the analysis are common to all three. Moreover, as discussed later in this section, they are more meaningfully interpreted when considered in conjunction with each other.

In all two-way and three-way analyses, we eliminated the C0 group from the population and compared only experimental and C1. This was considered more appropriate given the substantial differences in grading from one teacher to another.

1. Average Grades

In one-way analysis on the large population (1646), there was a significant effect (p = .0238) by experimental status. As table 21 shows, the C1 group had the highest mean and the experimental group the lowest.

Table 21.
Means and counts of MARK by EXPTYP

EXPTYP	C1	EX	
	72.19	71.88	
	(282)	(393)	p=.0238

This effect re-appeared (p = .000) in the two-way analysis by treatment and topic. There was also a strong effect by topic itself (p = .000), and a strong interaction of experimental state with topic (p = .004). The tendency by topic can be seen from table 22, but only the pair sociology and Computer Science, showed a significant difference.

Table 22.
Means and counts of MARK by TOPIC

TOPIC			
PHY	INF	SOC	ENG
75.13	73.40	70.85	68.79
(116)	(75)	(130)	(286)

However, it is important to note that the effect of treatment did not appear (p becomes .865) when we were able to take sex into account by re-running the analysis on the sub-population of 922 Vanier students.

Similarly, the effect of topic on average grade was substantially different in the subpopulation, as shown in table 23.

Table 23.
Means and counts of MARK by TOPIC in sub-population

TOPIC			
PHY	INF	SOC	ENG
72.43	75.61	70.85	70.14
(143)	(122)	(130)	(437)

These large changes in statistical patterns were among the features which led us to question the consistency of grades as a measuring device across different colleges and teachers. This issue is discussed further below.

There was also a highly significant effect (p = .000) by sex on grades, with the women's average (73.95) being higher than the men's (69.63). This is not surprising since much research suggests that, in general, women's grades are at least as high as men's.

Finally, the data on grades showed a surprisingly significant interaction (.000) between sex and topic, where table 24 shows women students receiving much higher grades than men in English and sociology, slightly higher than men in physics, and substantially lower than men in Computer Science.

Table 24.
Means and counts of MARK by TOPIC and SEX

(p=.000)

	TOPIC			
SEX	PHY	INF	SOC	ENG
F	74.43	70.53	73.70	72.35
	(51)	(32)	(93)	(138)
M	75.68	75.53	64.03	65.47
	(65)	(43)	(37)	(148)

This division along the lines of traditional disciplines is interesting; however, because this result did not involve the factor of experimental intervention, it tells us little about the

impact of feminist pedagogy.

2. Failure Rates and Drop-out Rates

As discussed in the chapter on methodology, two kinds of drop-outs were defined: official AB's and "Miscellaneous Disappearances" which included zeros, Incompletes, etc. Calculation of grade averages and of failure rates excluded MD's.

One-way analysis of variance found no effect by topic on AB rates, but very highly significant effects by topic (p = .000) on both failure rate and MD rate. The results are shown in tables 25 and 26.

Table 25.
FAILURE RATE by TOPIC

(p=.000)

TOPIC	PHY	INF	SOC	FRA	ENG	ECC
	.11	.06	.05	.00	.09	.14
	(253)	(158)	(243)	(182)	(669)	(141)

Table 26.
MD RATE by TOPIC

TOPIC	PHY	INF	SOC	FRA	ENG	ECC
	.00	.00	.00	.07	.02	.01
	(253)	(158)	(243)	(182)	(669)	(141)

Among other features of these tables, the figures for français are very revealing. We took the exceptionally high MD rate in this discipline, in conjunction with a zero failure rate, as a particularly clear manifestation of what may in fact be a much more generalized problem with the use of such indices as average grades, failure rates, and drop rates. Our examination of various patterns in the data suggests that these indices may be very much affected by the inconsistencies among different colleges, disciplines, and teachers in practices of handling of unsuccessful or absentee students. Whether such students receive grades of 0, 4% or 30%, whether they are given a 55% or a 60%, or whether they are given a status of incomplete, can have important effects upon the class average as well as upon the failure and drop rates.

It was an awareness of precisely this problem which had led us to define the "Miscellaneous Disappearances" category, to examine it, and to exclude it from the other indices. However, the data suggests that this provision did not carry the reasoning far enough and that the problem involves not only differences in recording but also major differences in the way students are actually treated. Hence, the quantitative data in the present section tends to mirror these differences in practice, rather than to constitute a consistent instrument responding to experimental treatment or sex. Thus, in the discussion of the remaining results for grades, failures and drop rates, we are for the moment assuming that these inconsistencies are distributed

randomly across all the groups, although this may likely not be the case.

Beginning first with the effects and interactions involving experimental treatment: Treatment had no significant factor effect on any of the three rates, at any level of analysis.

Two-way analysis of Ab rate by sex and treatment showed a significant interaction (p = .025).

Table 27.
AB RATE by SEX and EXPTYP

	SEX	
	F	M
EXPTYP		
C1	.01	.08
	(166)	(129)
EX	.02	.03
	(224)	(181)

p=.025

In table 27, we see that male C1 students had a much higher AB rate than male experimental students, while among females the experimental rate was sightly greater than the C1 rate. However, the interaction became non-significant in the three-way analysis, and we deduce that it was caused by some confounding factor.

There was, however, a significant (p = .002) interaction of experimental type with topic in the two-way analysis of failure rates, as shown in table 28.

Table 28.
FAILURE RATE by TOPIC and EXPTYP

(p=.002)

	TOPIC				
EXPTYP	PHY	INF	SOC	ENG	ECC
C1	.00	.10	.05	.12	.03
	(38)	(29)	(107)	(273)	(34)
EX	.04	.06	.07	.08	.24
	(126)	(70)	(136)	(196)	(80)

The interaction again appears with similar tendencies and is significant at .018, in the three-way analysis.

The MD rate showed no significant interaction or effects involving treatment or sex.

There was a highly significant effect by sex on failure rates at all three levels of analysis (p = .000 to .009). Women's mean failure rate (.0505) was much lower than men's (.1259). This is congruent with the results, described earlier for women's grades.

The three-way analysis for failure rates also shows an interaction of sex and topic. Table 29 shows the values.

Table 29.
FAILURE RATE by TOPIC and SEX

	TOPIC			
SEX	PHY	INF	SOC	ENG
F	.08	.03	.04	.07
	(51)	(32)	(96)	(143)
M	.02	.10	.16	.15
	(65)	(50)	(38)	(157)

As we see from the table, the division by sex tends to follow the pattern of science versus non-science, in the sense that women have a higher failure rate than men in physics, and lower than men in sociology and English.

In one-way analysis of AB rate there was a significant effect by sex ($p = .0292$), in which women's mean of .0234 was lower than men's (.0494). This effect was also significant ($p = .021$) in two-way analysis by sex and treatment, but disappeared in the three-way analysis which took topic into account.

Thus we infer that the effect by sex on AB's was not valid. In view of the strong effect of topic observed earlier, topic is readily identified as the confounding factor.

AB rates also showed a significant ($p = .022$) interaction of sex with topic in the three-way analysis.

Table 30.
AB RATE by TOPIC and SEX

(p=.022)

	TOPIC			
SEX	PHY	INF	SOC	ENG
F	.00	.00	.03	.03
	(51)	(32)	(96)	(143)
M	.00	.14	.03	.04
	(65)	(50)	(38)	(157)

However, as table 30 shows, the actual differences between sexes were close to zero in all but one case. In Computer Science the

male AB rate was much higher than the female.

Lastly, we examine the effects of topic in the multi-way analyses. Three-way analysis of the AB rate confirmed a significant factor effect by topic ($p = .016$). Computer Science had the highest AB rate (.09) and physics the lowest (.000).

The strong effect of topic on MD rate in one-and two-way analyses became non-significant in the three-way. It will be recalled from table 26 that only three disciplines had non-zero MD rates and one of these is ECC which cannot be included in three-way analyses.

Finally, the factor effect of topic on failure rate became non-significant in the three-way analysis.

In summary, there were very few consistently significant effects in this section which were readily interpretable, and none which gave very direct evidence on the impact of the experimental interventions.

E. PRELIMINARY DISCUSSION OF RESULTS

On the whole the quantitative results do not provide any striking support for, nor opposition to, the hypotheses of the project. This null result, then, forces us to question the sensitivity of the instruments which have been used with respect to the effects to be measured. It would appear that, as foreseen at the outset of this project, a one-semester intervention in just one of a student's six courses may indeed produce effects upon the student but which are too small and subtle to be

measured by a large-scale instrument such as the Coopersmith Self-esteem Inventory.

In seeking to understand the mixed results, particularly on the SACQ, it may also be useful to remember that at the college level students may not think in terms of a "discipline", which may still be an abstraction to them. Therefore even if they have experienced a change in attitude, they may attribute it to the most directly visible source, that is, to the particular course or teacher rather than the discipline. Hence faced with questions intended to measure interest in discipline, they respond more to the concrete details of the question. In terms of this argument, it is an interesting fact that the questions which elicited significant effects are almost all about a specific subject and the present or short-term future, as opposed to general educational or long-term intentions.

All of this suggests that in the space of one semester a student will normally not immediately and consciously change her/his attitudes toward large abstract entities, but may be in the process of building up and modifying such attitudes, a small piece at a time, out of specific immediate experiences such as a particular course, teacher or classrooom practice. There is a tentative but suggestive trend in the data which may support this approach to its interpretation. In the Coopersmith Self-esteem Inventory which is concerned with the general construct of self-esteem, virtually no change was detected which could be attributable to any of the factors. In the SACQ, which is

concerned with attitudes and intentions related to school, to the extent that anything significant was found it was strongly involved with topic. The marks, dropouts and failures which record actual concrete behaviors were also heavily affected by topic, but this was the first place that we began to see much effect by individual student attributes such as sex. The patterns we did see there tended to be confused by the difficulties underlying these particular measures. However, this trend does hint at the potential usefulness of focussing on more concrete, small-scale and specific features for quantitative measurement.

Chapter V. ANALYSIS OF POST-TEST INTERVIEWS AND TEACHING RECORDS

At the conclusion of the experiment, each of the participating teachers was interviewed in either French or English by one of the researchers. We each used the same carefully designed interview schedule (Appendix 10) and we taped each session; the tapes were then carefully reviewed by all three of us so that we could agree upon both the substance and the significance of the material gathered. Our analyses of these interviews were also informed by the records or tally sheets (as we called them) which teachers had kept during the semester and by the samples of students' written work which were shared with us.

From the very beginning of the research, we believed that these interviews were a necessary part of our efforts to assess the impact of the teaching strategies; and in fact, as this chapter makes clear, the observations and commentary of the teachers added a new and important dimension to our evaluation of the quality of the learning which students had experienced. Furthermore, the interviews, in combination with the records of teaching practice which the teachers had kept themselves, afforded us the opportunity to explore the process which unfolded in the classroom over the course of the semester. As our analysis of the interviews developed, we found that we were in the presence of a richer and more detailed picture of how these strategies actually work.

A. Some General Remarks

In general, the teachers participating in the project were positive about the overall experience. Without exception they said that they had found at least one new strategy they intended to incorporate into future course designs. Though all of them encountered difficulties of one kind or another, with one exception, all the teachers agreed that the advantages of using the strategies outweighed the problems. It is interesting that the vast majority of the teachers reported that they had come to know and understand their students better by using the strategies; those few who said they had not were four teachers who felt they always got to know their students well.

About one quarter of the teachers in the project talked about having to deal with some serious student resistance; however, as becomes apparent when we turn to examine the operation of each of the strategies in greater detail, the source and the significance of resistance differ substantially from case to case. Four teachers reported that they had encountered problems in trying to cover their course content: one or more of the strategies had, for them, used too much class time. We were interested to note that this complaint came from teachers drawn from various disciplines and that they all felt that part of this problem was one of adjusting to the new strategies and re-working the balance between "covering" material and allowing students to explore and integrate the material being covered.

One quarter of the teachers complained that the project had been associated for them with an increase in workload. Two of these felt that the strategies themselves had resulted in an excessive increase in workload; three said that they had had some difficulty in coping with the organizational aspect of so many student-centred activities; sometimes this included the extra work which the tracking system we had adopted for the research imposed. We were impressed, however, by the number of times that the narration of negative experiences ended with phrases like "I'll have to find a new way to ...", "It showed me I'm not very good at ...", "Next time I'll be sure to ...". On the basis of the interviews, it seems very clear to us that the teachers had all used the experiment as a learning experience. In this sense, even negative student reactions were seen as having some positive outcomes, and, in fact, the vast majority of the participants said that they had enjoyed the opportunity to explore these strategies with us.

Some teachers had very strong impressions about the success of their experimental classes. Again about one quarter of the teachers remarked that they had found the attendance rate to be much better in their experimental classes. These same teachers also reported fewer dropouts than they were accustomed to having. Many teachers said that they felt that there had been an improvement in the quality of the learning which had taken place as a result of the use of these strategies. The nature of this improvement emerges more clearly in the commentary on each of the

specific strategies. Before turning to this discussion, we want to note that the majority of the teachers felt that the strategies had worked equally well for the female and male students. At least six, however, observed that the girls had participated more actively and willingly, and some of these felt that the girls generally did more conscientious, and sometimes better, work.

B. Discussion of the Strategies

1. Systematic Self-disclosure

Of all the strategies under investigation, this one turned out to be the most problematic in terms of its experimental application. Thirteen teachers, drawn from the full range of disciplines, excluding Computer Science, opted to try either verbal self-disclosure in the classroom, written self-disclosure in responding to student papers, or both. However, of the eleven participants who had opted to do verbal self-disclosure, either on its own or in combination with the use of written I-statement responses, more than half reported that it had required a great deal of effort to avoid making the same disclosures in the control group. "Disclosure is a natural part of me" one of the teachers said and, indeed, this statement seems to capture the essence of the problem.

Thus, although the majority of the users liked the strategy, they often had the feeling that it was an extension of personal

style more than a conscious strategy per se. Several teachers began to find it difficult to keep the record of self-disclosures which we were asking them to maintain; one teacher said that she continually felt unsure about whether her interventions in class were in fact self-disclosures; another said that his difficulty was in planning the disclosure since they "just seemed to happen".

Nonetheless, in spite of this experimental difficulty, it is fair to say that the teachers who did verbal self-disclosure, and who were comfortable with it as a personal style, saw it as being effective. Many of them described how the experiment had made them more conscious of what type of disclosures worked best for them and how they used disclosure in their courses. They saw disclosure as having a positive effect in the class when it made students more relaxed, more attentive, and/or more willing to participate. Teachers who reported using the strategy successfully agreed that long and inappropriately personal revelations usually had the opposite effect, that is, they tended to make students uncomfortable and withdrawn. These "experienced disclosers" seemed clear about what constituted appropriate disclosures for them and they used these flexibly; they stressed the importance of choosing the right moment for making the disclosure in a lecture or class discussion. One teacher said that it was her way of marking transitions in the material which she was teaching; another said that she used them whenever she wanted students to speak openly about something.

It is interesting that the teachers who were the most positive about their experiences with this strategy also spoke of an increased awareness of the distinction between academic and therapeutic self-disclosures. One teacher said that it made her see that she could transform those more intimate moments when teachers speak about themselves just to speak about themselves, into something pedagogically useful. Her assessment: "une belle façon de susciter des questions".

It is therefore hardly surprising that the one teacher who was uncomfortable with this strategy felt that the disclosures did not come naturally to him. It was, however, this negative experience which offered the best example of how self-disclosure involves an interaction between teacher and students. The teacher in this case suggested that self-disclosure was rendered particularly difficult for him because of a particularly uncooperative and inattentive group of students in his experimental class. Our reading of the tally sheets kept by teachers using this strategy certainly suggests that student response, even in terms of simple body language, is an important part of the process sustaining the teacher's offering of her/himself in the classroom. It is also possible that by creating an atmosphere, more open to the expression of the personal, teachers create a space in which students are given license to express negative as well as positive views and emotions. At least four teachers chose to reflect upon this aspect of the process in the interviews.

The written part of the self-disclosure strategy was more

easily controlled (One teacher said that she simply used different coloured ink in her experimental class to remind her of where she was); however, only five teachers chose to systematically employ written self-disclosing statements in the marking of student papers. Of these, two felt that the strategy had not produced any visible change in students' behaviour and both of these people, though for different reasons, began to feel uncomfortable about making such statements. The other two teachers were extremely positive about the results obtained. They both said that more students asked for permission to re-write their work. One of these teachers said: "I got more revisions and they came to see me more. They felt that I was talking to them." It is perhaps worth noting that this same teacher commented that marking with self-disclosure was more time consuming but also more fun: "I liked being positive."

2. Peer Support Partnerships

Seventeen of the teachers participating in the project opted to test peer support partnerships in their classes. We were able to look at the operation of this strategy in every discipline under investigation. The vast majority of the teachers set up dyads, with an occasional triad, in each experimental class. There were, however, three teachers who used the peer support partnerships as an organizational unit for creating larger groups in the classroom, either intermittently, but regularly, for various activities, or on a permanent basis as the semester wore

on. Of all the teachers implementing this strategy, only one felt that it had had no effect on her class and one felt that she had shifted to using larger groups too quickly to be able to assess the effect of the dyads on her class. All the other teachers reported that the dyads had had impact on the learning experience of their students and everyone described this experience in positive terms.

Slightly more than half of the teachers in this group reported that the dyads in their experimental classes were functioning regularly and extremely well. These teachers talked about an atmosphere in the class which seemed to favour the development of better relations among the students. They all said that there was more mutual interaction in the class. One teacher said: "(T)he class was more relaxed, less reluctant to speak to me about problems ... there were fewer cliques". These teachers said that the students seemed to have more confidence. A physics teacher observed that the partnerships in the classroom seemed to make students less dependent upon her for producing the correct answer. A Computer Science teacher suggested that individuals had a better sense of problem when they had first engaged in a shared exploration. Another teacher concluded by saying, "Students were connected to the material more effectively expecially those who had never done this before" and several teachers remarked that even shy students opened up and spoke in their dyads. The positive value of dyads for shyer and/or weaker students was noted by several teachers in a range of disciplines. "(Q)uiet

students seemed to gain confidence and did share ideas with the class", a teacher wrote on her tally sheet. One of the teachers who was most positive about her experience with dyads observed a lowered drop-out rate in the experimental class, and this in spite of the fact that the class was scheduled at a relatively unpopular time of day and that the students seemed to be generally weaker. "An extra something kept them there", she said, "they had more friends - they really did phone each other".

These teachers were also positive about the quality of the learning which took place when dyads were functioning well. "I could see the improvement at an earlier stage", observed a teacher evaluating student's ability to criticize written work. "Even students who failed got more out of the course", said another. We were particularly struck by the fact that this positive evaluation was shared by teachers who had less over-all success in keeping the support groups meeting and functioning. For example, one such teacher said that only about half of his partnerships met regularly. When they did, he observed that you could really see understanding happening.

In fact, this teacher belongs to a group of approximately five teachers who reported having significant problems sustaining the activity of support partnerships. Because we were concerned to understand the process which was unfolding in these experimental classes, we listened carefully to these teachers in an effort to identify the factor or factors which might explain the differences in this respect. On the basis of our interview

data, it is clear that students in all the classes under investigation chose their partners in much the same way; that is, they tended to choose friends or, at least, acquaintances, often people next to whom they were sitting. The partnerships which resulted tended to be either all male or all female units, although there were a substantial number of mixed groups. All the teachers observed that it was necessary to retain some flexibility in order to keep dyads and triads working in spite of the problems posed by absenteeism and drop-outs.

All of the teachers who used this strategy agreed that the partners tended to work best if they were freely chosen and based on friendship and some mutual knowledge. Partnerships which floundered usually involved people who were "thrown together". The teachers who evaluated the functioning of their dyads most positively even assigned exercises to allow students an opportunity to assess their work compatability with their partners. Two teachers observed that all female groupings tended to work better; one teacher included female/male partnerships in this category. Although some teachers mentioned that there was the occasional problem with a student who seemed stuck in a negative partnership, all teachers, whether or not they were successful at sustaining the partnerships throughout the semester, agreed that students selected themselves into apparently appropriate groupings. Everyone agreed that with very rare exceptions the partners functioned in a basically egalitarian manner.

Where the two groups of teachers differed, however, appears to be in terms of the extent to which they integrated the instructions which they received about using dyads into their teaching practice. A crucial factor here, for example, was the extent to which the dyad activities were systematically made part of the course content. In practical terms, this meant that these activities had to be rendered clear and important from the beginning of the semester, always monitored, and consistently valued (either by giving them a mark for completion or by using them in some other way). One teacher who reported great success with dyad work said: "There was never a dyadic exercise without me finding out what they had done". It is, therefore, perhaps not surprising that most teachers found that they got the most consistently good results with in-class dyad activities. One of the teachers, who ultimately was highly successful in sustaining dyad work, told us that she couldn't get students to carry through on their dyad work outside of the classroom unless she rewarded the work with marks. She readjusted: "I started to give them dyad tasks in class". And, indeed, all of the teachers who were unable to sustain the activity said in one way or another: "I assigned dyad activities ... (t)here was no evidence that anyone did them". One teacher in the "successful" group provided an interesting summary of the process when she wrote on her tally sheet: "Students enjoy these activities and participate with some commitment provided: 1.there is a mark 2.the task is very, very clear 3.time is given to it in class 4.it is linked to their

learning".

It is also important to note that most of the teachers who were less successful at sustaining the dyad as a functioning unit were well on their way to understanding why this had been the case, at least by the time of the interview. One teacher said: "I waited too long with the problem-solving groups"; another said: "I would re-use it but be more disciplined"; and a third: "I'm going to have to find a better way of keeping track". It is interesting that this was also true of the teachers who felt that they had been relatively more successful with the strategy. Several of the teachers belonging to this group complained that the dyads had created an environment in which there was now too much discussion, some of it apparently uncontrollable; but they all said that they would continue to use them, while exploring other strategies for integrating this more personal material into the course content. A few teachers who reported varying degrees of difficulty in sustaining dyad activity also reported an increase in absenteeism. They suggested that this might be explained in terms of the presence of a "note-taking buddy". All of this suggested to us that some of the teachers who were new to the use of support partnerships might have needed more opportunity to practise this organizationally more demanding technique before entering the testing situation.

Finally, it should be noted that one of our suggested methods for rendering the support partnerships more central to students' learning involved asking students to do some self-

reflection about their own experiences in these groupings. Some teachers did, in fact, solicit this type of information from students and as a result, we have an interesting, though clearly incomplete record of some students' responses to this strategy. On the basis of this admittedly fragmentary data, the students appear to share the enthusiasm of the majority of teachers. When they have reservations about the strategy, these generally centre about a concern over the distribution of marks. There seems to be some consensus, among teachers as well as students, that the ideal formula involves an individual as well as a group component when a final product (as opposed to the process itself) is being evaluated. Thus, all of our interviews and records, those drawn from failed attempts as well as those representing more successful experiences, strongly suggest that, if certain basic conditions are satisfied, dyad work creates more engaged and committed learners.

3. Using Writing in the Learning Process

Eighteen of the participating teachers chose one of the writing strategies for testing. We can therefore report on the use of writing in all five of our chosen disciplines, in English and in French. Furthermore, the writing-to-learn strategies seemed to be the most successful. All of the teachers who chose to test writing said that they would use it again in another course. This is not to say that writing-to-learn strategies were not criticized or that teachers did not have problems with them.

There were many difficulties as well as successes, all of which are outlined below. In general, however, teachers felt that the overall objectives set for writing-to-learn strategies had in fact been fulfilled.

The most popular choice among the strategies was the five-minute free write: ten teachers - half the population - chose to use them. It would be interesting to know whether this choice had anything to do with the fact that we had so carefully integrated two free writes into our preparatory workshops for these teachers. Certainly, one sociology teacher was able to use her own experience in our workshop to good advantage; as she introduced the strategy to her class, she talked about how hard she had found it, and she predicted that some of them would, too. This remark allowed the students to flounder at first, without embarrassment.

In any case, free writes were used in all disciplines. Student resistance was reported most strongly in physics and Computer Science, though the physics teacher said he did not think it was the writing that students objected to as much as to having to be in class to get the free write credit. This teacher said that fifty per cent of his students objected to this strategy. The Computer Science teacher did not give us a percentage, but said that quite a few students complained. One teacher of English reported some resistance toward the end of the term. All the other teachers said their students took to it very well, producing more and better work as the semester progressed.

Three teachers said that the women students were most interested in the strategy and did the best writing. One teacher remarked on real improvement in expression through this uncorrected written work.

Most of the teachers using five-minute free writes seemed to use them to begin classes. A very common procedure was to ask the students to write, then share the work with a partner, then take part in a class discussion. In classes where partners were not used, the writing led at once to class discussion. Teachers were unanimous in stating that the writing led to much better focussed discussion with many more participating students. The tactic that worked the least well was to ask for volunteers to read their work aloud to the class: students seemed reluctant to do this. Seven of the nine teachers stressed how much more they discovered about their students' difficulties with subject matter and learning by using this strategy. None of the teachers complained about the time required to read and check off the free writes, but four of them complained that the process took too much class time. One teacher complained that it took fifteen minutes to deal with free writes; another teacher said that it took three quarters of an hour. Two of the four teachers said that they thought the problem was probably theirs: they found it very difficult to bring closure to the excellent discussion that can occur when students are activated in this way. Another teacher discovered her own solution to this very problem: using free writes at the end of the class, to actually accomplish closure.

Free writes were also used to have students evaluate the other strategies, such as dyads and collective course units.

In talking to these teachers, we could not fail to notice some widely varying practices. Teachers had very different interpretations of what was an appropriate "prompt" or topic question for students to write on. One of the teachers who encountered so much resistance always used very specific and knowledge-testing prompts about the physics course that he was teaching. The other teacher who encountered resistance said that he learned to use more and more open questions as the term went on. Certainly, in all disciplines, the best work seemed to be written in response to open-ended questions in which students could express their opinions. Some teachers seemed to find it particularly difficult not to correct the writing, too, and in one case we saw evidence of spelling errors underlined and writing evaluated for form and content. In another case, though the teacher followed our guidelines, he said he would use writing in a future physics course but that he would most certainly correct both form and content. It is clearly hard for teachers to alter habitual behaviours, and asking them to follow certain procedures does not necessarily convince them this is worth doing. However, given the generally acknowledged expression problems of both French and English student populations, teachers showed remarkable restraint in their treatment of free writes.

Two teachers asked students to keep journals as part of the

experiment. A third teacher had students do a few journal entries as well as free writes during the semester, and a fourth gave us a most interesting journal record but said it could not be seen as a formal part of the experiment since she had not been systematic enough. All four teachers were in the Language and Literature area. The most common prompt was to ask students to react to the course readings. One teacher said he had some problems with these prompts, in that his students tended to write mini-essays in their journals: he did not think he had been entirely successful in communicating with the students how informal and personal a journal reaction could be. He said that he would have to find a way to explain this better next time.

The teacher who was most enthusiastic about the journal experiment was another male English teacher who had also never used the technique before. Simultaneously with taking part in our project, however, he decided to take a Performa course in using journals in the classroom and did some journal writing of his own. He said that the students seemed to enjoy keeping journals and on the whole did very well. He felt the journals very effectively linked cognitive and affective learning. The best journals, he said, were written by quiet females who did not take much part in class discussion; the very mediocre journals were written by males who talked a lot in class. Had it not been for their journals, he would not have been able to communicate individually with the quiet female students at all.

All of the teachers who used journals stressed how much they

learned about their students, and how helpful this knowledge was. One of the English teachers was surprised to see how clearly he could distinguish those students having difficulty with abstractions. A teacher of francais said she could see how many students were really not doing their reading. Another English teacher said she was shocked to discover how much her students disliked the reading material on her course, once they were invited to tell her so in a free and uncensored format. Clearly both course planning and pedagogical interventions are much assisted by this kind of information. All the teachers liked using the journals and said they would use them again without hesitation. None complained about the reading load: one teacher estimated it took him about five hours to read one class set, each time he collected them, but that even though this was over and above essay marking time, the undertaking was well worth while.

Two teachers asked their students to contribute to a collective class log, filed on reserve in the library: one English teacher and one teacher of Early Childhood Education. Both teachers were extremely pleased about the success of the log for those students who participated. Entries were interesting, open and creative. Students quite early began responding to each other by name. The use of names was a very interesting feature for us, as described in Chapter II: students seemed to enjoy identifying and being identified by other students in this way. They commented on each other's entries and directed each other's

attention to important course-related items in the newspaper and on television. Shy students made particular reference to how much easier they found it to express themselves to the class within the covers of a book than face to face with a large group. These teachers have given us the logs and we are making copies of this interesting material for further study.

There were significant differences between these two teachers' experiences which we found to be very instructive. The Early Childhood teacher asked her students to write once a week, as the workshop package had suggested. She decided that students ought to be able to complete sixty per cent of the entries to get some of the credit she had set aside for this course component. In her class, however, there were eleven students who completed fewer than the required sixty per cent: this meant that almost half the class (11 out of 25) did not get any credit. The students had various explanations, but the chief problem seemed to be that some of them just forgot to do the work, since the teacher was not collecting it in class. The English teacher, on the other hand, asked for entries only every two weeks, and the participation rate was higher. Less than a third fell below the sixty percent bench mark. If we compare these two admittedly very different and isolated cases and draw conclusions from them, it would seem that the log requires so much initiative on the part of the students that to ask them to contribute every week may disqualify some of them from the start. An extraordinary number of them can sustain this kind of effort, however, with minimal

teacher reinforcement. The teachers read the log only three or four times in the semester and made a few comments in class as well as on some of the entries.

The writing strategy which brought the most conflicting responses was the question and answer box. Six teachers undertook to test the strategy. One physics teacher and one English teacher felt it was their greatest success. A second physics teacher and one Computer Science teacher found it interesting but dropped it part way through the semster because they were not statisfied that they had found an effecive way to use it. A third physics teacher liked it a great deal but said it was very hard to get students to participate. An Early Childhood Education teacher reported zero participation. These widely varying experiences have made us look very carefully at this strategy.

First of all, given that four out of the six science teachers participating in the project chose to try the question and answer box, it appears that this strategy has a natural appeal in this area. Students in science classes are sure to have questions about the material and putting those questions into words helps them with their learning. The trick seems to be to "sell" the idea to the students. The teacher who was most successful clearly made this one of his major thrusts of the semester. He collected the questions from students in class on Monday and handed them back on Wednesday in the lab; he put brief comments on all of them; he answered some questions individually as he moved about the lab; he integrated some of the other

questions into his classes; he wrote full explanations to some requests for help. Students were allowed to read their own work again briefly and then they filed their papers in a large cardboard file which the teacher carried with him to the lab: each student's work was filed there, week by week, by name. Though they did not read one another's, the students were given the same sense of value of their work as those writing in a collective log. The exercise was compulsory and students who participated got the full five marks for doing so. Their questions were very focussed on the work and frequently repeated each other throughout the class, giving the teacher a very clear indication of group as well as individual problems. There were some notable examples of students arriving at their own answers through the writing process. Once again, the teacher has given us this material, and we intend to study it further.

It is not very difficult to analyze what made the difference between this successful experience and the less successful use of this strategy in the other physics classes. One difference was certainly the commitment of the teacher, who not only made it compulsory but talked it up as useful and enjoyable. One of the other physics teachers confessed she always has trouble enforcing routine obligations for students: this might be the explanation for the low participation rate in her class. Those who did participate asked very interesting questions, however, often on general interest matters, and she was able to enrich the course by providing them with articles to read from scientific

journals. The physics teacher who discontinued the practice began by asking students to bring the questions to a box on her office door rather than by picking them up in class. Their conclusion seems to have been that coming to the office was the major point being made, and many of them did so. Their written questions tended to be very perfunctory, however. At mid-term, this teacher asked students to evaluate the method. The evaluations, which she showed to us, were very positive: they liked the method, found it helpful, and really appreciated the message of teacher concern for student learning that lay beneath it. Because she asked them if they wished to continue, however, just over fifty per cent said no, because they found it an extra effort, and really preferred to speak to her directly.

Though the English teacher liked the method and the Computer Science teacher discarded it, their reactions were in some ways quite similar. They both said they learned a lot about the students, what puzzled them and what they needed to know. The English teacher said she found out that she had been using certain texts for years without being aware of some of the real misconceptions that students had about them. The Computer Science teacher discovered a lot about some new software he was using. Both teachers, however, said that it took a lot of class time. The Computer Science teacher had to abandon it because he could not afford to spend the twenty minutes or more that it took to deal with the major questions. The English teacher began to write some of the answers for students individually. The English

teacher said this was really too much work, but it was so valuable and the students wanted the answers so much she decided it was worth while.

These various experiences with the question and answer box and indeed with all the write-to-learn strategies clearly underline the importance of making such practices course requirements which students must complete and for which students are rewarded with some kind of mark. Where participation was optional and unrewarded, as in the Early Childhood course, students tended not to take advantage of it. As one of the English teachers pointed out in her interview with us, students have not been taught how to use their own thoughts and minds as part of the learning process. Without this sense of the importance of engagement, they automatically choose the role of spectators in their learning. Because they have not experienced the advantages of active involvement, they see all such activities as merely extra work to be avoided at all cost. In this situation, it is important for teachers to communicate the importance of all acts of process, particularly those which require writing. Communicating importance involves all the aspects of "selling" which our physics teacher used: making the work compulsory, giving automatic credit for doing it, responding to it immediately, demonstrating faith in it as a method, and giving students regular exposure to visible proof that all this is going on. It might be argued that this is spoon feeding, but it is spoon feeding a process, not a set of answers, and the

process, we believe, lies at the heart of meaningful education.

3. Collaborative Course Units

Only two teachers made use of this strategy. Given their success, and given our overall concern with student autonomy, co-operation, and language in the learning process, it is regrettable that more did not try it. We take responsibility for some of the teacher reticence: we became more and more concerned, during the pre-test interviews, with some of the problems of what teachers described as group projects, and we feel that we were perhaps overly cautious about recommending extended collaboration. Furthermore, it is interesting that the two teachers who did allow their students to take over a whole unit of the course were English teachers whose courses are of their own design and who therefore are only answerable to their programmmes for teaching skills and processes rather than for covering course content. There is real fear that students will not learn material that is not teacher-taught.

Both teachers used ingenuity and imagination in adapting the outline in the workshop package to suit their needs. One asked for the journal entries as suggested, but opened the final question to a statement of one interesting way of helping the class understand the play rather than a list of topics required for such understanding. What resulted were a lot of very creative choices: dramatizations, puppet shows, debates, and so on. She

said the hardest part was to allow the groups to make their own choices, a process that some of them found difficult to deal with. She allowed small parts of four classes for this group process, and took in reports of their progress after each class. Her only requirement was that the group agree on a significant project, and that each person have a clearly designated task. She gave feedback to the groups at each session. Groups were then given time to prepare their presentations outside of class, while she continued to cover other material with them in classes. Before the class viewed the projects, however, she required the class to establish the evaluation criteria, and that became the task of the other groups during the presentations: groups were required to collaborate on a single evaluation for each presentation, and were given five minutes consultation time to arrive at this conclusion. Some of the presentations were overly ambitious and therefore not entirely satisfactory; many were, however, excellent. All the students liked doing the unit, enjoyed working together (generally two dyads joined together to form a group), and felt it had been the best part of the course. The teacher said she thought it was one of the most stimulating units she had ever organized.

The other teacher did not require journal entries but did warn students early that one novel was theirs to deal with in groups. When the time came, students chose whom they wished to work with: groups of five were required, as there were four course themes the teacher wished explored in the novel, and four

students were each responsible for one of them, with the fith student responsible for introducing, co-ordinating and concluding the written product. She allowed one full class for these decisions to be made. She then carried on with other course work while the students prepared their material: she said that in retrospect she feels she ought to have given more class time for consulting. At the end of the semester she allowed four days for the groups to give mini-presentations of their work to the class. She also took in the major collaborative assignment which she said was of much higher quality than their other work in the course. Their evaluation of the collaborative unit was very enthusiastic. Women students were especially enthusiastic. The teacher felt that this work had also affected other aspects of the class: the whole class got to know each other better and the quality of class dicussion improved. In fact, the spin-off for the class as a whole was so good that the teacher felt she ought to have done the group work earlier, so that the class could profit from the improved atmosphere for a longer period.

Carefully organized collaborative course units are clearly popular with students and successful from a pedagogical point of view. Students seem to choose their groups well, usually of mixed gender once there are more than three of them. They also run their groups fairly and equitably if they are given the appropriate help with structuring the work. We believe that more teachers could make use of this type of strategy, and allow students to take possession of more of their own learning.

C. Some General Conclusions on the Teachers' Experiences

Our interviews with the teachers, review of their records, and reading of sample work of the students suggests that the feminist pedagogical strategies were producing effects which tended to support the overall hypothesis of this research. The classrooms which these teachers described seemed to be characterized by an increased sense of community, empowerment of individuals, and a general atmosphere of mutual respect, trust and support. Teachers using the strategies reported, in a variety of ways, evidence of an increase in student engagement with course content. These same teachers frequently reported that they observed more confident, active and effective learning.

Student confidence is difficult for teachers to evaluate except insofar as it relates to student behviour. If we consider the student behaviours described in these interviews, however, it can be seen that many of the strategies addressed the issue of confidence by allowing students to develop a greater sense of their own abilties. The peer support partnerships, for instance, which the teachers described as most successful, were those in which students took on very responsible functions with respect to one another, and fulfilled their responsibilites with a good deal of pride. Many teachers felt that students in these dyads had

become more autonomous and self-confident learners. The writing-to-learn activities were over and over again described as giving to shy students outlets for self-expression and growth which they would not otherwise have had. The collaborative course units which were so popular built confidence in their participants and required confidence for their completion. The fact that so many teachers said in their interviews "I never knew students felt that way" shows us that the students in these classes had the confidence to tell their teachers what their needs and wishes were, and that this confident self-expression was definitely greater than the teachers had ever experienced before.

Our hypothesis that the strategies would create conditions favourable for the development of confidence seems therefore to be supported by this interview material. Each time some indicator of increased self-confidence was described, the teacher confirmed that this favourable outcome was related to her/his having established, through the use of one or more of the strategies, an atmosphere of trust. We also noted that, in this atmosphere, teachers were more likely to hear students and therefore the classroom was more likely to be democratized. In the context of this tendency toward democratization, individuals were more likely to be empowered. What begins to emerge, indeed, from this material, is a pattern of important links between the various aspects of our original hypothesis, and a strong sense that the strategies create conditions favourable for learning.

The strategies also appear to have fostered much more active

learning. The peer support partnerships, writing-to-learn activities and collaborative course units which these teachers described were all student-centred, student-active endeavours. In general, as the interviews show, the teachers were surpised and pleased with the extent of the student participation. Where there was student resistance, it appears that the resistance was, at least on the surface, a resistance to this activity. It is clear that capitulating to this resistance undermines the pedagogy, and many teachers told us that they discovered the secret is to insist that all students involve themselves. Teachers in the project began to be sensitized, however, to the complexities of teaching students how to involve themselves in the learning process. If students do not experience the advantages of involvement, resistance is a logical, predicatable response. Since resistance can also be a growing point, however, perhaps more work could be done in helping teachers deal with it.

Certainly, to be effective, teachers must have a full understanding of the strategies they are using, both in their specifics and in the overall learning objectives of the behaviours they are encouraging. When the understanding is there, the teacher can make the kind of informal but important adaptations of the strategy that her/his course content requires. It is obviously important to provide teachers with adequate guidance and support for new undertakings: we feel that our November, January and March workshops helped the teachers bring about more effective learning during the semester. We have

described, however, how many teachers felt that they would change their approaches in the future, and the message seems to be that it takes time, perhaps more than one semester, to learn how to use new strategies most effectively.

Learning effectiveness is normally measured by student grades, and these grades are examined in Chapter IV. We would argue, however, that there is a quality of learning, especially with respect to involvement in process, that is not always reliably reflected in grades, but which is definitely recognized by teacher and students alike. The fact that a number of teachers said that their grades in experimental classes were higher than usual reflects this sense: whether or not the grades really are higher is not as significant here as the teacher's sense that what has happened is educationally more valuable than other kinds of interactions with students in the past.

Our hypothesis was that the strategies would produce more confident, active and effective learning. What we did not anticipate, however, was how much effective learning the teachers would experience by their participation. Teachers learned how to use several strategies together, and they taught us what they had learned. They learned how they must organize themselves more efficiently in order to direct student activities. They learned new skills in routine pedagogical matters such as conducting class discussions, making lectures interesting, and marking student papers. They described their enjoyment of this learning.

The interviews helped us to see how central the teachers'

learning process was to the experiment as a whole. Teachers told us about discovering new behaviours, making mistakes, making changes, listening to students, and so on. They communicated an enthusiasm for learning to us which may possibly have allowed them to model productive and effective learning for their students. They reminded us, too, that our post-experiment student questionnaires tapped but one moment in a process which they perceived as both complex and on-going.

VI. CONCLUSIONS

The hypothesis of this research project, namely that a one semester exposure to feminist pedagogical strategies could improve, in a quantitatively demonstrable way, the self-esteem of female students, their interest in and liking for the subject under investigation and their willingness to continue in education has not been proven. On the other hand, our qualitative data, in the form of in-depth interviews with the participating teachers and analysis of their records of pedagogical intervention in the experimental classes, strongly suggests that there have been improvements in a number of areas which bear upon the original hypothesis.

This discrepancy between quantitative and qualitative results, in conjunction with the largely non-significant findings of our two questionnaires, namely, the Coopersmith Self-esteem Inventory and our own School Attitude and Commitment Questionnaire have led us to the following conclusions:

Firstly, we want to suggest that an instrument such as the Coopersmith Self-esteem Inventory does not appear to be an instrument calibrated to measure the subtlety of the changes which occur in student's self-esteem from semester to semester in a single course. In fact, none of the measures which we chose to read appear to have been equal to the task. Neither the general self esteem measure nor the academic sub-scale were able to measure any experimentally significant change from pre to post-

test.Our own instrument, geared to measure much more specifically subject and even course bound attitudinal changes, on the whole failed to detect convincing differences either with respect to sex or experimental intervention. It is true that we were able to observe some differences which were related to the effects of the discipline in which the student's course had been offered. It is also possible that the fact that teachers did not all choose the same strategies had some effect on the outcome. However, the results over-all have led us to consider whether these tests have the kind of sensitivity to learning attitudes and expectations which our experiment required.

Marks and student failure and withdrawal rates looked as if they were going to discriminate between groups slightly more effectively than our other instruments; however, here too, these measures were not sensitive enough to tell us what we needed to know about the kind of change which might take place over a single semester. We also discovered that these indices are plagued by specific methodological problems. The valid interpretation of the failure rate is compromised by the enormous variation which appears to exist in its use; rates of withdrawal are too small for meaningful statistical manipulation. The quantitative dimension of this research suggests that different instruments are necessary in order to measure these phenomena. In this respect, it is particularly significant that the qualitative dimension of this research has helped us to better understand the process which is to be measured.

This process is, indeed, a complex one. On the basis of the interviews which we conducted with the participating teachers, we would suggest that the effects achieved by pedagogical intervention in a single semester are better described and, if necessary, measured in more specific terms which better capture discrete moments in this learning process. In other words, it appears that we should be measuring changes in phenomena which are closer to what students are actually doing in the classroom. Thus we would recommend that researchers seeking to measure changes in such broad psychological constructs as self-confidence and self-esteem need first to identify the pedagogically relevant markers subject to visible change in a relatively short space of time. Although it is clearly beyond the limits of the present research project to venture far on to this terrain, on the basis of the interviewing which we have done, we believe that it is possible to identify useful indices here. For example, all of our interviews with participating teachers suggest that self-confidence and self-esteem are linked to the presence of trust and that one measure of student trust in the classroom is her/his willingness to become visible: to speak out, to take risks, to make demands. Clearly, there is preparatory work exploring these connections to be done before research can proceed in this area; however, our point is that carefully chosen measures of visibility are more valid.

In fact, the data which we have collected over the past semester is particularly rich in terms of the light it sheds upon

the process of introducing feminist strategies into the classroom. The experiences of the participating teachers helped us to understand that some minimal conditions had to be met before we could even begin to speak meaningfully about the pedagogical intervention. Thus our research findings confirmed the validity of our initial stance. It appeared to be necessary to valorize new pedagogy with old currency; that is, the teacher had to emphasize its importance by introducing it enthusiastically, using it consistently, and reinforcing it with marks. However, since the teacher was also involved in a learning process, it now seems necessary to suggest that this too probably affected the eventual outcomes in ways which we can describe on the basis of our qualitative data but about which our quantitative instruments can tell us nothing. We also need to chart this process through more long term studies.

Finally, we want to emphasize that we now have considerably more information about what actually happens in classrooms in a wide range of different disciplines, when teachers use such student-centred and student active pedagogical techniques. In this respect, the work of these twenty teachers over the past semester represents a valuable contribution to the field of pedagogical research.

A. SELECTED RESEARCH BIBLIOGRAPHY

Anastasi, Anne. (1970). Psychological Testing. 3rd ed. New York: MacMillan.

Astin, Helen and Hirsch, Werner. (1978). The Higher Education of Women. New York: Praeger Publishers.

Bateman, Dianne. (1988). Success in College: Who Are We Educating? A Longitudinal Study of the Congitive and Affective Growth of Cegep Students. An Interim Report. Québec. La Direction de l'Enseignement Collégial.

Belotti, E.G. (1973). Du Côté des Petites Filles. Paris: Ed. des Femmes.

Bernard, Jessie. (1964). Academic Women. New York: Meridian Books.

Buros, O.K. (Ed.). (1978). Mental Measurements Yearbook. Lincoln: University of Nebraska Press.

Canada. Ministry of Supply and Services. (1985). Education in Canada. 1983-84 Statistical Review. Ottawa: Statistics Canada.

Canada. Ministry of Supply and Services. (1985). Women in Canada: A Statistical Report. Ottawa: Statistics Canada.

Chevrier, Jean-Marc. (1985). Human Resources Testing. Montreal.

Conseil d'enseignant(es) du Québec. (1975-1976). Les stéréotypes sexistes dans les manuels scolaires. Québec.

Cook, Thomas and Campbell, Donald T. (1979). Quasi-Experimentation. Boston: Houghton-Muffin.

Coopersmith, Stanley. (1981). The Coopersmith Self-Esteem Inventory. Pao Alto: Consulting Psychologists Press Inc.

Dallaire, Louise et Bellan, Jacques. (1985). Les Jeunes et l'éducation: une étude des 15-24 ans dans les systèmes d'éducation au Canada. Ottawa. Secrétariat d'état. Direction des communications.

Dunnigan, L. (1975). Analyse des Stéréotypes masculins et feminins dans les manuels scolaires du Québec. Québec: Editeur Officiel.

Dunnigan, Lise. (1976, mai). L'école "Sexiste" c'est quoi? Québec. Conseil du statut de la femme.

Epstein, Cynthia Fuchs. (1974). Bringing Women in: Rewards, Punishment and the Structure of Achievement. In Ruth B. Kundsin (Ed.), Women and Success: The Anatomy of Achievement. New York: William Morrow.

Farley, Jennie (Ed.). (1981). Sex Discrimination in Higher Education. Ithaca: ILR Publications.

Furniss, W. Todd and Graham, Patricia Albjerg. (1974). Women in Higher Education. Washington: American Council on Education.

Gaskell, Jane. (1983, September). Education & Women's Work: Some New Research Directions. Alberta Journal of Education Research, XXIX. (3), 224-241.

Gilligan, Carol. (1982). In a Different Voice: Psychological Theory and Women's Development. Cambridge: Harvard University Press.

Goldman, Leo. (1971). Using Tests in Counselling. 2nd Ed. New Jersey: Prentice Hall.

Goupil, Raymonde. (1987). Plan d'Action 1987-1988 en condition feminine. Québec. MESS, Services aux clientèles spécifiques.

Harding, Sandra. (1987). Feminism and Methodology. Bloomington: Indiana University Press.

Hobbs, E.D., and Erickson, G.L. (1980). Results of the 1978 British Columbia Science Assessment. Canadian Journal of Education, 5 (2).

Horner, Martina. (1969, November). Fail: Bright Woman. Psychology Today, 3, 36-38 ff.

Horth, Lise et Angers, M. (1985). La Pratique pédagogique et le sexisme. MEQ. DGEC. Service de la recherche et du développement. (Collège de Drummondville).

Howe, Florence. (1981, April). Women and the Power of Education. A AHE Bulletin, 33 (8), 11-14, 16.

Howe, Florence: (1984). Myths of Co-Education: Selected Essays, 1964-1983. Bloomington: Indiana University Press.

Julien, Lise. (1984). La femme et l'éducation au Canada. Canada. Le Conseil des ministres de l'éducation.

Klein, Susan Shurberg (Ed.). (1986, Autumn). Sex Equity and Education. Theory into Practice, XXV (4).

Krug, Samuel E., Cattell, Raymond B., and Sweney, Arthur B. (1970). School Motivation Analysis Test. Champaign: Institute for Personality and Ability Testing.

Laforce, Hélène. (1987, Automne). La pédagogie feministe frappe à nos portes. Remue-meninges.

Laliberté, Jacques. (1987). La formation fondamentale la documentation française (1981-86). Québec. Centre d'animation, de développement et de recherche en éducation.

Lemieux et Mercier. (1982). La recherche sur les femmes au Québec: bilan, bibliographie. Québec. Institut québécois de recherche sur la culture.

Mager, Robert. (1984). Developing Attitudes Toward Learning. D.S. Lake Publishers Press.

Palmer, Parker J. (1988). Community, Conflict and Ways of Knowing. Change.

Perry, William G. (1981). Cognitive and Emotional Growth: The Making of Meaning. In A.W. Chickering (Ed.), The Modern American College. San Francisco: Jossey-Bass.

Québec. Ministère de l'éducation. (1982, 29 mars). Direction générale du développement pédagogique discriminatoire dans le matériel didactique imprimé.

Québec. Ministère de l'éducation. (1980, avril). Les actions du ministère de l'éducation dans le dossier de la condition feminine. (dossier synthèse).

Québec. Ministère de l'éducation. Bureau de la condition feminine. (1981, janvier). Etat des actions entreprises et prévues par le ministère de l'Education dans le cadre des suites à donner aux recommendations du Conseils du statut de la Femme, 2.

Québec. Ministère de l'éducation. Bureau de la condition feminine. (1985, mai). Plan d'action triennal: éducation-condition feminine.

Québec. Ministère de l'éducation. Bureau de la condition feminine. (1981, juin). Plan de travail, avril 1981-mars, 1982.

Québec. Ministère de l'éducation. DGEC. Bulletin Statistique. (1984). La Réussite Scolaire au collégial, 9 (7).

Québec. Ministère de l'éducation. Service de la recherche. (1980, novembre). Recueil des thèmes de recherche en éducation.

Ricard, Philippe. (1987, novembre). Pratiques Pédagogiques et Sexisme au CEGEP. Document de travail. Québec. La Direction de l'enseignement collégial. (Collège de Rosemont).

Riverin-Simard, Danielle (et autres). (1978). Vire - Vie: evaluation du projet. Quebec. Ministere de l'education. Service de la recherche et experimentation pedagogique.

Riverin-Simard, Danielle et Francine Couture. (1979, juin). Effets à long terme du projet Vire - Vie. Québec. Direction générale du développement pédagogique. Service de la recherche et experimentation pédagogique.

St-Arnaud, Micheline. (1986). L'Orientation des filles au cours collégial. Québec. La Direction de l'enseignement collégial. (Saint-Jérome).

Serbin, Lisa A. and O'Leary, K.D. (1975). How Nursery Schools Teach Girls to Shut Up. Psychology Today 1975, 9, 57-102.

Simeone, Angela. (1987). Academic Women. Granby, Maine: Bergin and Garvey.

Vickers, Jill McCall and Adam, June. (1977). Canadian Universities and the Status of Women: But Can You Type? Toronto: Clarke, Irwin & Co. in assoc. with the Canadian Association of University Teachers.

Violette, Michèle. (1982, juin). Plan d'action du ministère de l'Education en matière de condition feminine prov 1982-1983. Québec. Ministère de l'éducation.

Weatherby, Rita Preszlev. (1981). Ego Development. In A.W. Chickering (Ed.). The Modern American College. San Francisco: Jossey-Bass.

B. SOME WORKS ON FEMINIST PEDAGOGY AND RELATED TEACHING STRATEGIES:

About Writing. (1981, Autumn). SCDC National Project Newsletter.

Abrami, Philip, et al. (1987). Using Co-operative Learning. Montreal: Education Department, Concordia University.

Allen, David. (1986). Nursing and Oppression: The Family in Nursing Texts. Feminist Teacher, 2 (1) 14-20.

A Propos d'éducation. (1988). Recherches Feministes, 1 (1).

Bailey, Gerald and Dod Smith, Nancy J. (1987). Integrating the Effective Teacher and Sex Equity Literature by Developing Teacher - Made Process Materials. Feminist Teacher, 2 (2) 26.

Bean, John. (1987, December). Creating Short Write-to-Learn Assignments in Content Courses. Literacy Across the Curriculum, 4 (2).

Belenky, Mary Field et al. (Eds.). (1986). Women's Ways of Knowing: The Development of Self, Voice and Mind. New York: Basic Books.

Bleier, Ruth. (1986). Feminist Approaches to Science. Oxford: Pergamon Press.

Bock, Mary. (1987). Laps in Confidence: Enabling Peer Groups to Work. Feminist Teacher, 3 (1).

Bowles, G. and Klein R.D. (Eds.). (1983). Theories of Women's Studies. London, Routledge & Kegan Paul.

Bunch, Charlotte and Pollack, Sandra. (1983). Learning Our Way: Essays in Feminist Education. New York: The Crossing Press.

Chapman, Anne. (Ed.). (1986). Feminist Resources for Schools and Colleges. New York: The Feminist Press.

Claxton, Charles S. and Murrell, Patricia H. (Eds.). (1987). Four Learning Styles. New York: Aste-Eric.

Cross, Sheila. (1987). Teaching Strategies in Nursing. In F. Davis et al (Eds.). Engaging the Learner. Montreal: Vanier College Press.

Culley, Margo and Portuges, Catherine. (1985). Gendered Subjects: The Dynamics of Feminist Teaching. London: Routledge & Kegan Paul.

Davis, Angela. (1982). Women, Race and Class. New York: Random House.

Dias, Patrick. (1985). Researching Response to Poetry - Part 1: A Case for Responding Aloud Protocols. English Quarterly, 18 (4).

Eichler, Margrit and Laporte, Jeanne. (1985). On the Treatment of the Sexes in Research. Ottawa: Social Sciences and Humanities Research Council of Canada.

Ellsworth, Elizabeth and Larsen, Margot Kenniard. (1986). Clinical Media Analysis, Radical Pedagogy, and the MTV. Feminist Teacher, 2 (1), 8.

Feminist Perspectives on Reading and Writing (1988, November). Inkshed. (Special Issue).

Freire, Paolo. (1973). Education for Critical Consciousness. New York: Seabury Press.

Freire, Paolo. (1970). Pedagogy of the Oppressed. New York: Herder and Herder.

Fulwiler, Toby. (1981, February). How well does Writing Across the Curriculum Work? College English, 46 (8).

Garet-Petts, W.F. (1988). Developing a Community of Readers: Computer Networking in the Freshman Literature Classroom. English Quarterly, 21 (1).

Gabelnick, Faith and Pearson, Carol. (1985). Finding Their Voices. Feminist Teacher, 1 (3), 11.

Giele, Janet Bollanger. (1978). Women and the Future. New York: Free Press.

Golden, Carle. (1985). The Radicalization of a Teacher. Feminist Teacher, 1 (3), 22.

Graves, Donald. (1983). Writing: Teachers and Children at Work. Portsmouth: Heinemann.

Hoffnung, Michele. (1986). Feminist transformation: Leveling Experimental Psychology. Feminist Teacher, 2 (1), 31.

Humm, Maggie. (1985). Gender in Higher Education. Feminist Teacher, 1 (2), 10.

Johnson, David and Johnson, Roger. (1975). Learning Together and Alone: Co-operation Competition and Individualization. New Jersey: Prentice-Hall.

Langland, Elizabeth and Gove, Walter. (1981). A Feminist Perspective in the Academy: The Difference it Makes. Chicago: University of Chicago Press, Chicago.

Martin, Nancy et al. (1976). Understanding Children Talking. London: Penguin.

Millman, Marcia and Kantar, Rosabeth Moss. (1975). Another Voice: Feminist Perspectives on Social Life and Social Science. New York: Doubleday.

Mizener, Heather. (1985, Summer). Microcomputers in the English Classroom. English Quarterly, XVIII (2).

Neniroff, Greta Hoffman (Ed.). (1987). Women and Men: Interdisciplinary Readings on Gender. Toronto: Fitzhenry and Whiteside.

Newell, George. (1986, Winter). Learning From Writing: Examining our Assumptions. English Quarterly, 19 (4).

O'Donnel, Carol. (1984). The Basis of the Bargain. Sydney, Boston: G. Allen.

Pannill, Linda. (1985). Introduction to Women's Studies as a Skills and Methods Course. Feminist Teacher, 1 (2), 13.

Pearsall, Marilyn. (Ed.). (1986). Women and Values: Readings in Recent Feminist Philosophy. California: Wadsworth.

Perry, Constance M. (1987). Teaching a Controversial Novel to a Conservative Classroom: The Color Purple. Feminist Teacher, 2 (3), 25.

Pédagogie Collégiale. (1988, October). 2 (1).

Recent Research in Co-operative Learning. (1988, September). International Association for the Study of Co-operation in Education Newsletter. (Special Issue).

Rich, Adrienne. (1979). On Lies, Secrets and Silence. New York: W.W. Norton.

Robinson, Joan and Sabetryon, Sharon and Griffin, Virginia. (Eds.). (1985). Learning Partnerships: Interdependent Learning in Adult Education. Toronto: OISE.

Shor, Ira. (Ed.). (1987). Freire for the Classroom: A Sourcebook for Liberatory Teaching. Portsmouth: Heinemann.

Spender, Dale. (1982). Invisible Women. London: Writers and Readers.

Spender, Dale. (1980). Man-Made Language. Boston: Routledge and Kegan Paul.

Spender, Dale. (1981). Men's Studies Modified: The Impact of Feminism on the Academic Disciplines. Oxford: Pergamon Press.

Stake, Jane and Rose, Suzanne. (1985). The Development of Career Confidence: Making the Difference for College Women. Feminist Teacher, 1 (4), 10.

Walden, Phylis A. (1988). A Learning Journal as a Tool to Promote Lifelong Learning Skills. Feminist Teacher, 3 (2).

Weiler, Kathleen. (1988). Women Teaching for Change: Gender, Class and Power. Mass: Bergin and Garvey.

C. WOMEN AND SCIENCE: SELECTED BIBLIOGRAPHY

Armstrong, J.M. and Price, R.A. (1982). Correlates and predictors of women's mathematics participation. Journal for Research in Mathematics Education, 13 (2).

Baruk, Stella. (1973). Echec et maths. Paris: Seuil.

Baruk, Stella. (1985). L'âge du capitaine: de l'erreur en mathématiques. Paris: Seuil.

Bleier, Ruth. (1986). Feminist Approaches to Science. New York: Pergamon Press.

Briggs, Hazel and Holding, Brian. (1986). Aspects of Secondary Students' Understanding Elementary Ideas in Chemistry: Full Report. University of Leeds: Centre for Studies in Science and Mathematics Education.

Brooke, Angela and Driver, Rosalind. (1986). The Construction of Meaning and Conceptual Change in Classroom Settings: Case Studies on Energy. University of Leeds: Centre for Studies in Science and Mathematiques Education.

Buerk, D. (1985). The Voices of Women Making Meaning in Mathematics. Journal of Education, 167 (3).

Burton, L. (1986). Girls into Maths Can Go. London: Holt, Rinehart and Winston.

Davis, Fran and Steiger, Arlene and Tennenhouse, Karen. (1989). Stratégies feministes dans la classe de mathématiques.

Femmes et Mathématique: Quelle Différence? Montréal: Editions du remue-ménage.

Dumas, Marie-Claire. (1985). Women and Computers: Current Situation and Prospects for Future Action. Government of Canada: Canadian Workplace Automation Research Centre.

Fennema, E. (1979). Women and Girls in Mathematics: Equity in Mathematics Education. Educational Studies in Mathematics, 10 (4).

Ferguson, J. (Dir.). (1982). Who Turns the Wheel? Ottawa: Science Council of Canada.

Fox, Lynne and Brody, Linda and Tobin, Dianne. (1980). Women and the Mathematical Mystique. Baltimore: Johns Hopkins University Press.

Gilbert, Catherine. (1988). The Attitude of Female Chemistry Students. Quebec. La Direction de l'Enseignement Collegial.

Halpern, Carol and Samuelson, Marlene. (1985). Our Progress and Struggles as Feminists Teaching Biology. Feminist Teacher, 1 (4), 10-14.

Harding, S. and Hintikka, M.B. (Eds.). (1983). Discovering Reality. Netherlands: D. Reidel Publishing Co.

Harding, Sandra and O'Barr, Jean. (1987). Sex and Scientific Inquiry. Chicago: University of Chicago Press.

The Invisible Filter Kit. (1984). Toronto Board of Education. Department of Mathematics.

Kaseberg, A. and Kreinberg, N., and Doainie, D. (1980). Use Equals to Promote the Participation of Women in Mathematics. Berkeley: University of California.

Keller, Evelyn Fox. (1985). Gender and Science. New Haven: Yale University Press.

King, Barbara. (1982, December). Using Writing in the Mathematics Class. Theory and Practice. In New Directions for Teaching and Learning. Teaching Writing in all Disciplines. No. 12. San Francisco: Jossey-Bass.

Lafortune, Louise. (Ed.). (1986). Femmes et mathématique. Montréal: Editions du remue-ménage.

Lafortune, Louise. (1988). L'Enseignement des mathématique d'appoint aux adultes. Montréal: CEGEP André Laurendeau.

Morazain, Jeanne. (1985, September-October). Pourquoi les filles abandonnent les sciences. Ma Caisse.

Mura, Roberta. (1987). Les attitudes face à la math chez des étudiants et étudiantes de niveau universitaire. Perspectives universitaires, 3 (1 & 2).

Mura, R., Cloutier, R., Kimball, M., Braconne, A., Caron, L., et Gagnon, F. (1986). Attitudes expériences et performances en mathématique d'étudiantes et d'étudiants de cinquième secondaire selon leur choix scolaire. Cahiers de recherche de GREMF, 9.

Nimier, Jacques. (1984). Mathématiques et affectivité. Paris: Stock.

Petersen, P.L. and Fennema, E. (1985). Effective Teaching: Students' Engagement in Classroom Activities and Sex Related Differences in Learning Mathematics. American Educational Research Journal, 22 (3).

Pump, Teresa L. (1985). Science and Math Careers for Women. Feminist Teacher, 1 (3), 18-21.

Rosser, Sue V. (1987). Science and Health-Related Women's Studies Courses: A Report After 10 Years in the Academy. Feminist Teacher, 2 (2), 30-34.

Rosser, Sue V. (1986). Teaching Science and Health From a Feminist Perspective. Oxford: Pergamon Press.

Science and Technology/Science et technologie. (1984). Canadian Woman Studies/Les cahiers de la femme, 5 (4).

Tobias, S. (1978). Overcoming Math Anxiety. New York: W.W. Norton.

White, Janet. (1988). The Language of Science. London: Department of Education and Science.

Le 7 septembre 1988

Chere collegue, cher collègue,

Respectivement professeurs d'anglais, d'humanités et de physique au cégep, nous travaillons toutes trois actuellement, avec l'aide d'une subvention PAREA de la D6EC, à un projet de recherche en pédagogie axée sur l'étudiant, dont l'objectif est l'amélioration et l'évaluation d'un ensemble d'approches et de méthodes didactiques connexes qui, nous l'espérons, deviendront une ressource utile pour nos collègues enseignants.

Nous désirons examiner des approches pédagogiques qui permettent d'établir en classe un climat de respect et d'appui, qui favorisent la participation active des étudiants au processus d'apprentissage et qui créent un esprit de groupe au sein de la classe. Les méthodes que nous voulons examiner sont les suivantes :

1. Les méthodes d'autocommunication systématique.
2. Les équipes d'étudiants pour l'étude, tant en classe qu'à l'extérieur.
3. Les projets lancés par les étudiants.
4. Les comptes rendus et exercices permettant d'intégrer l'écriture au processus d'apprentissage.
5. Les sujets de cours mettant à contribution l'expérience des étudiants.
6. L'appel à des talents et à des styles différents.
7. La préparation et la présentation en classe en petits groupes.

Aux professeurs qui consentiront à collaborer à notre recherche, nous demanderons d'utiliser l'une des méthodes susdites dans l'une de leurs classes H-89 et, parallèlement, de ne pas l'utiliser dans une autre classe (classe temoin). Puis, nous évaluerons la validité de notre hypothèse générale, à savoir que le fait d'accroître l'engagement de l'étudiant à l'égard du contenu du cours donne lieu à un apprentissage plus assuré, plus actif et plus efficace.

Pour nous aider dans notre entreprise, auriez-vous l'obligeance de remplir le questionnaire ci-joint et de le remettre, LE 30 SEPTEMBRE AU PLUS TARD, à l'une des personnes contacts suivantes : Greta Nemiroff (Dawson), Louise Vigeant (Département de français, Edouard-Montpetit), Sasinaz Calamawy (André Laurendeau), Diane Brière (Montmorency), Fran Davis (Vanier).

Il est entendu que les réponses au questionnaire ne seront pas divulguées sous le nom de leur auteur.

Avec nos remerciements, nous vous prions d'agréer, chère collègue, cher collègue, nos cordiales salutations.

Fran Davis (484-7646) Fran Davis

Arlene Steiger (272-9126)

Karen Tennenhouse (481-7085)

FD/AS/KT/cc

PÉDAGOGIE AXÉE SUR L'ÉTUDIANT - QUESTIONNAIRE

1. Quelles matières enseignez-vous? _____

2. Avez-vous déjà personnellement utilisé l'une des méthodes suivantes? Cocher "oui" ou "non" dans chaque cas.

a. L'autocommunication	____ Oui	____ Non
b. Les équipes d'étudiants pour l'étude	____ Oui	____ Non
c. Les projets lancés par les étudiants	____ Oui	____ Non
d. L'écriture comme partie du processus d'apprentissage	____ Oui	____ Non
e. Les sujets de cours axés sur les étudiants	____ Oui	____ Non
f. L'appel à des talents et à des styles différents	____ Oui	____ Non
g. La préparation et la présentation en petits groupes	____ Oui	____ Non

3. SI VOUS AVEZ DÉJÀ UTILISÉ L'UNE DE CES MÉTHODES, consentiriez-vous à nous accorder un entretien personnel d'une heure au maximum, pour nous permettre de recueillir votre opinion quant à l'efficacité de ces méthodes dans l'enseignement de votre matière et d'enrichir notre répertoire d'applications et de matériel pédagogique. Dans la plupart des cas, ces entretiens auront lieu au cours des six prochaines semaines; mais ils pourraient se dérouler jusqu'au début de décembre, à la date et au lieu de votre choix.

a. _____ Oui, je consens à être interviewé.
b. _____ Pas sûr; j'aimerais avoir plus de renseignements.
c. _____ Non.

4. QUE VOUS AYEZ OU NON DÉJÀ UTILISÉ L'UNE DE CES MÉTHODES EN CLASSE, consentiriez-vous à participer à notre étude? Dans l'affirmative, un membre de notre équipe vous aidera à vous préparer au cours d'un atelier, vous donnera des lignes directrices et du matériel type propre à votre matière et vous servira de personne ressource pendant le semestre. De plus, nous tiendrons une réunion au début de novembre pour discuter du projet avec les participants. NOUS SOUHAITONS QUE NOTRE ÉCHANTILLON SE COMPOSE, POUR MOITIÉ AU MOINS, D'ENSEIGNANTS N'AYANT JAMAIS UTILISÉ CES MÉTHODES.

Voici ce qu'implique la participation à notre projet de recherche :

a. Assister à un atelier, avec pauses, en janvier.
b. Utiliser en classe au moins l'une des méthodes durant H-89.
c. Enseigner à une classe-témoin à l'aide de ces méthodes.
d. Faire remplir par les étudiants un bref questionnaire d'attitude au début et à la fin du semestre.
e. Nous communiquer vos opinions durant et surtout à la fin du semestre.

i. _____ Oui, je consens à participer.
ii. _____ Pas sûr; j'aimerais avoir plus de renseignements.
iii. _____ Non.

5. Renseignements à nous donner pour nous permettre de communiquer avec vous :

Nom _____ Département _____

Collège _____ N° de tél. - Bur. : _____ Dom. : _____

VEUILLEZ REMETTRE CE QUESTIONNAIRE LE 30 SEPTEMBRE AU PLUS TARD À L'UNE DES PERSONNES CONTACTS SUIVANTES :
Greta Nemiroff (Dawson), Louise Vigeant (Département de français, Edouard-Montpetit), Sasinaz Calamawy (André Laurendeau), Diane Brière (Montmorency), Fran Davis (Vanier).

2. The Objectives of the Project:

To define and test, in a broad range of disciplines, a group of related teaching strategies, referred to as a feminist pedagogy, for improving female students' self esteem, interest in and liking for subject matter, performance, commitment to continue in subject/programme, and attitude and commitment to further education in general.

Hypothesis:

The over-all hypothesis of the research is that by increasing student engagement with course content, feminist pedagogy can produce more confident, active, and effective learning.

Specific hypotheses:

a) That humanizing the classroom and establishing an attitude of mutual respect, trust, and support will contribute to the above mentioned goals.

Techniques to be tested:
i)Self disclosure: Systematized methods for the exchange of appropriate personal information about self in relation to subject by the teacher and by the student.
ii)Peer support: Small study groups or partners for mutual academic help and encouragement.

b) That individual empowerment of students as active participants in the learning process will contribute to the above mentioned goals.

Techniques to be tested:
i)Self-initiated projects:Having students design lab experiments, choose topics for term papers, suggest parts of course content
ii)Using writing in the learning process:Assigning weekly journals in which students comment and reflect upon course topics
iii)Incorporation of materials systematically tapping students' experiences
iv)Drawing upon a wide range of student skills (using writing in the sciences or using computers in language courses)

c) That democratizing the classroom and building a sense of community contribute to the above mentioned goals.

Techniques to be tested:
i)Co-operative work units in which students contribute to a common project

INTERVIEW SCHEDULE (DRAFT)

1. Identify method, discipline, course.

2. Detailed description of the method:
   a) specific example: Describe a typical day using the method.
   b) printed materials if these are available
   c) How integrated was the method into the course as a whole?
   d) How was it graded?
   e) How much classroom time was given to the method?

3. How would you evaluate this method?
   a)What are the most negative things about it? The most positive? Did you have any particular problems with the method?
   b) How did the students feel about it?
      Do all students feel the same way?
      Did you feel that there was a difference in the way that men and women reacted to the method?
   c) What characteristics or learning styles in students does this method draw out?
   d) Do you have any hard data on the success of the method?

4. Why did you start using this method? What pedagogical goals were you trying to fulfill?

5.How did the use of this method affect preparation and correcting time?

6. Would you use this method again yourself?

7. What advice would you give to others who might choose to use this method?

8. Specific questions:

SPECIFIC QUESTIONS ** (see end)

Self-Disclosure

Is it accidental?

Do you repeat your disclosures in all your classes?

Do you feel absolute truthfulness is necessary?

Have you elicited"therapeutic" relationships? How do you deal with them?

Do you use self-disclosure in your marking? How?

Do you require self-disclosure from your students? Does this create any problems?

Do you have any systematic procedures to offer us?

How important is it for you to link the self-disclosure to the content of the course? If so, how do you do it?

Peer Support Groups

What is the best size for a peer support unit?

Do you form the partnerships/units or do the stuents choose whom to work with?

Are they usually gender-mixed or gender-separate? Do you have any particular views on this matter?

What kinds of direction do you provide for the "outside the class-room " aspects of this relationship?

Have you ever had peer support groups break down? If so, what did you do? If not, why not?

Do supoort groups become hierarchical unit? Is this a problem?If so, how do you avoid it?

To what extent do you encourage the groups to include concrete course content in their exchanges?

Self-Initiated Projects

How do you start this process - i.e. how mch do you set up in the way of structure and requirements?

How do you ensure a project is viable?

Do you ever use self-initiated projects for some students while others do assignments? If so, what are the problems/advantages?

Do you have ways to get students to generate course content/material?

Writing in the Learning Process

How do you deal with students' resistance ("This is not a writing class!")?

How do you deal with the reading/marking load? Any good short-cuts?

What do you do with real literacy problems, that make the writing incomprehensible?

How important is it for you to have students link the personal with the course content? Can you suggest a process which helps to bring this about?

How concerned are you about the student using her own language, not copying or plagiarizing? What do you do about it?

Do women students respond differently to writing than men?

Student-Centred Materials

Would you be willing to provide us with specific examples or units for us to use in the project?

Do you have ways of getting the students to generate course materials?

Could you give me a student-centred example of _____?

How do you use student error pedagogically?

How do you reach the information/misinformation/lack thereof inside students' heads to bring them forward to real understanding?

Do you have any course materials designed specifically for women?

Appealing to Differing Skills and Styles

What are the standard learning styles/skills for your area?

Have you had experience of helping students access some content using other learning styles? What are they, and how did you make use of them?

Do you simply vary your methods/assignments throughout the course or do you offer specific alternatives for specific situations?

How do you ensure real equivalence among alternatives?

Do you have any observations about how different skills and styles affect student success in your area?

Do you have any observations about gender-based learning styles or skills in your discipline?

Collaborative Work on a Collective Project As a Learning Tool

What is the best size for a collaborative working group?

Do you form the groups or do the students choose?

Are they gender-mixed or gender-separate? Do you have any views on this matter?

How do you ensure each member does equal work on the project?

How do you deal with group problems (if any)?

How do you ensure class attention to student presentations?

Do the groups become hierarchical units? In what way (if so)? Is this a problem? If so, what do you do about it?

** A question worth asking on each strategy is whether the spin-off from the strategy is so valuable that even if it doesn t teach the subject that well, it is still worth doing.

le 15 novembre 1988.

Cher-e collègue,

Comme vous le savez, nous travaillons depuis plusieurs mois à la mise sur pied de notre projet de recherche en pédagogie. Pour faciliter votre participation à ce projet nous vous invitons à une courte présentation qui aura lieu MERCREDI LE 30 NOVEMBRE 1988 à 19:30 au "Faculty Lounge" situé dans le corridor 7C, 7ième étage, Collège Dawson, 3040 rue Sherbrooke O.

Nous vous transmettons en annexe un extrait de notre demande de subvention qui explique bien la philosophie de notre recherche. Malheureusement nous n'avons pas eu le temps de traduire ce document qui a été conçu en anglais. Nous vous prions de nous excuser et nous nous engageons de faire parvenir toute autre documentation en français.

A la réunion de 30 novembre prochain, nous avons choisi de réunir tous les participant-e-s au projet, aussi la présentation se fera-t-elle en français et en anglais. Pour permettre a chacun-e de mieux faire connaissance, un vin-fromage sera servi.

Cette rencontre nous permettra de vous présenter les stratégies pédagogiques de notre recherche. Vos commentaires nous aideront par la suite à mieux adapter ces stratégies à vos besoins particuliers.

Il nous serait également très utile de pouvoir consulter le plan d'étude du cours que vous prévoyez donner dans le cadre de la recherche. Aussi, nous vous demandons d'apporter ce plan à la réunion avec une liste des textes proposés ainsi de toute autre information que vous jugerez pertinentes.

En terminant, nous tenons à vous remercier encore une fois d'avoir accepter de participer à cette recherche.

Au plaisir de vous rencontrer le 30 novembre prochain.

Fran Davis

Arlene Steiger

Karen Tennenhouse

R.S.V.P. (avant le 28 novembre): Fran, 484-7646
Arlene, 272-9126
Karen, 481-7085

A PRACTICAL ASSESSMENT OF FEMINIST PEDAGOGY

PRELIMINARY PACKAGES

FOR USE IN

ROUGH DRAFT

Please read these descriptions very carefully.

By no later than December 16, please contact the person in charge of the research in your discipline, give her a plan d'étude of the course to be tested, and indicate which two or three of the strategies you would like to introduce into it for H89. If there are any modifications you think ought to be made to these outlines, please communicate these to us at the same time.

Revised packages with tally sheets, attendance record sheets, and all other necessary information will be available for the January Workshops, tentatively set for January 12.

Research Responsables:

Arlene Steiger: Sociology
Computer Science

Fran Davis: English
French
Early Childhood Education

Karen Tennenhouse: Physics

STRATEGY: Systematic self-disclosure in (a) classroom lecture-discussion and (b) responding to writing

OBJECTIVES: To personalize and democratize the learning situation and to establish an atmosphere of mutual respect, trust and support

METHODOLOGY: (a)Classroom Lecture-Discussion:

Ideally once a week but at least once every two weeks, the teacher chooses a few moments of class time in which s/he can reveal her/himself engaged in a learning/working process rather than as an accomplished master of skills and content. In making this self-disclosure, the teacher creates an atmosphere in which students feel free to examine their own states of process, reveal their confusion, ask questions, and see the learning process as universal and desirable rather than either the temporary state of the young and powerless or the uncomfortable state of the impossibly ignorant. We are not recommending an artificial egalitarianism between student and teacher. However, the point is to address the student, insofar as possible, as one would engage a colleague, albeit a junior one, in a discussion of her/his work. The goal is to enhance the student's capacity to see her/himself as a serious learner, one who is responsible for her/his own thought process.

We suggest the following contexts:

(i) A short disclosure of how difficult you might have found this particular problem/skill/task/concept when you were a student.

(ii) A short disclosure of how exciting/enlightening/helpful you found this particular concept/connection/analogy/trick during your own learning process.

(iii) A disclosure that you are presently involved in re-thinking the idea/concept/material being discussed, with some expression of uncertainty of the conclusion you might come to.

(iv) A disclosure of yourself in the process of doing a parallel task (taking a course, writing an article - actually showing the students your own rough work is very useful -, learning to do a specific thing or being in the middle of a familiar but many-facetted task).

(v) A disclosure of some aspect of your life experience which illustrates something that is being covered in class or read in a text, and that helps students deal with their own parallel experiences.

Self-disclosure is frequently confused with the disclosures of the therapeutic relationship. We remind you that here the teacher is in control of the disclosures, and can ensure that they are appropriate and relevant.

We consider that the greater the variety of contexts in which you use disclosure, the more likely it is to have a positive effect. We will supply you with a simple record sheet so that you may keep track of what you do and how you feel about each disclosure's effect.

STRATEGY: Self-disclosure (Continued)

b) Responding to written work:

The teacher/reader communicates her/his reading process of the student text and how this process leads to the final grade. Simple "I" statements are used throughout the responding process. The strategy is designed to emphasize reading process as learning process on the part of the teacher, rather than prior mastery of material by the teacher against which the students' efforts are measured. For this reason the teacher's comments throughout the paper are more important than the final summary comment.

Because this strategy is designed to emphasize the extent to which teachers, like students, are involved in a process of grappling with various issues, it is particularly well-adapted to the Social Sciences. Here, research is, indeed, recognized as an on-going process of confrontation and resolution between the researcher and the object of her/his research. In self-consciously communicating this dynamic to students, teachers, we believe, can meaningfully humanize the classroom by emphasizing the shared academic endeavour. The student thus becomes, if not a partner, then at least an accomplice.

The following "I" statements are presented as a new code which teachers are asked to use instead of their usual marginalia and summary comments. It is important to note that no absolute statements about text are made. The "I" statements are process reactions and not final judgments. We believe that this kind of communication helps the student to see her/his writing as a process, open to improvement and change in specific and humanly manageable ways.

POSITIVE	NEGATIVE
I see your topic clearly	I can't find your topic
I understand this point	I can't understand you here
I am convinced	I need more convincing
I follow this	I am lost here
I like this evidence	I need more evidence
I find this logical	I can't find the logic

POSITIVE/NEGATIVE

Although I cannot share your theoretical perspective, I can see you asembling potential evidence

Although I find your references to the text confusing, I think that your ideas about the issue are relevant

SAMPLE SUMMARY STATEMENTS:

As you can see, I went through ---------- as I was reading your paper. The paper itself seems to be worth about ------. Please see my comments throughout your paper.

STRATEGY: Using Writing in the Learning Process

OBJECTIVES: 1. To empower students as active participants in the learning process

2. To encorporate a learning method which seems to be more comfortable for female students

3. To help students to integrate learned material into their own thought processes

METHODOLOGY: Teachers assign short pieces of student writing in which learners articulate what they already know about subjects to be covered in class, what they have not understood about what has already been covered in class, what conclusions they have come to about what they have read, what questions they have about what they have read, and so on. Articulation in language helps students integrate course content into their own thought processes, and short writing-to-learn assignments encourage this integration in gradual non-threatening ways.

In each of the four different variations of this strategy, described below, we emphasize three important principles. First, the writing must be used for some purpose at some point by the teacher and/or students. Second, it should have a mark value in the overall evaluation scheme of the course. Third, and perhaps most important of all, it must not be corrected or critiqued by the teacher. If such correction takes place, the student is penalized for taking the very risks we are asking her/him to take. All of our suggestions set up contexts for using the writing and suggest ways to "evaluate" while avoiding criticism that might redirect students' efforts into pleasing the teacher rather than finding out what s/he thinks or knows.

Here are four variations of the strategy, each designed to be pursued for an entire semester:

1. Five-Minute Free-Write, Filed in a Learning Log: The teacher systematically uses the first five minutes of at least one class a week for freewriting in the learning log, the writing task to be set by the teacher, usually in the form of a question. This writing is used immediately to spark discussion, create a bridge between one lecture and the next, find out the problem areas in reading, track down misconceptions, find out where and why a specific set of problems presented difficulty, etc. This strategy has the additional advantage of bringing students to class and getting them involved more promptly. Specific students can be asked to read their work; students can quickly read each other's; groups of students can pursue the topic. Whatever use is made of the writing, responses should at some point be collected and tallied, perhaps between classes, or with the submission of logs every so often.

Other variations of the first five-minute free-write are stopping in mid-lecture or at the end of a lecture and having students write (a) summaries of what has been presented, or (b) connections between what has been presented and an earlier

course topic, or (c) specific student-generated application of examples of the theory or idea presented. Again, this has to be brief, must be used, if not always at least frequently, and has to be acknowledged but not necessarily read by the teacher so that it is established as a valued process.

Obviously if one has time and interest in doing so, one can make greater use of this Five-Minute Learning Log, for starting group discussions, working toward diad work, working toward more formal writing, and so on. One can also spend more time reading the answers, if one wishes, and take from them topics for lectures, future assignments, etc. But the strategy can also occupy only 10-15 minutes of class time, perhaps once a week, and still be useful to get students wide awake and interested immediately, encourage students to think through what they are learning, and dignify their learning process by showing an interest in it.

This strategy works best if the teacher writes too, and shares his/her writing about once every three or four times writing is shared. This teacher participation is particularly needed at the beginning of the semester when the teacher's involvement valorizes the process. Certainly, the teacher must be silent while students write; s/he could mark, read, do something that suggests a parallel if not identical thinking/integration exercise.

In some cases, a simple 5 mark unit for the writing log is enough, and you can just give 5 full marks to everyone who always tries and produces some writing. This use of the log throughout the semester would be sufficient use of this writing-to-learn strategy for us to test is efficacy. A Tally sheet will be provided to the teacher.

2. Longer Writing Log (Journal): Teachers assign various types of writing which allow students to reflect on what they are learning. Students write reactions to what they are assigned to read, reactions to class lectures, reactions to media presentations. They can also be asked to deal with course content is purely cognitive ways, for example, by writing paraphrases of sections of text (50-word paraphrases, 200-word paraphrases), précis of lectures, chapter outlines of a reading in the text, lecture outline of the teacher's lecture, and so on. We do not think that notebooks per se are adequate for this purpose, for, though taking notes does help students concentrate, it does not force them to think.

This is a much heavier use of the writing log than (1), and requires careful thought about the workload for student and teacher. It is immensely valuable for helping students to keep on top of their reading and to reflect about it, for helping them to pay attention in class, for actually bringing them to class in some cases, and for helping teachers find out what is working and what is not.

These writing logs must be used in some way: to begin discussions, to start the writing of papers, or simply to check that a reading has been done.

It is extremely important that the log be given some mark value but that it not be corrected or critiqued. Marginalia is appropriate if the teacher has time, but it should be of a generally encouraging nature. Real errors in reading or understanding should not be dealt with in directive comments in the journals themselves: the teacher might go over the material again in class, or ask students to go back over their journal entry themselves, after the class discussion, and make "corrections" of their own misconceptions.

3. Collective Class Log, on File in the Library: This is a good way to use the writing for all the students, and at the same time to cut down your own marking/collecting load. All you need to do is to set up a file binder in the library reserve section, with a labelled space for each student. We suggest a mark value of about 5 for the contribution of the individual student. You should read the binder three or four times a term.

The assignment is that once a week each student writes about 200 words related to the course and files it, along with anything else s/he wishes to include,in the class binder. You could leave the assignment very open and just have them write reactions, or you could have them find newpaper articles on parallel subjects and write about them, find course-related cartoons and comment on them, write up how they have debugged programs or run into real problems with specific course materials, write about an everyday illustration of a theory or concept, etc. Students should be required to read the log and be responding to each other, too, whether in the open style of just-about-anything-relevant-goes, or in a stricter usage where the collective log is really a record of a class' struggle with learning to use a computer, learning a set of theories, or working out physics problems. If they can respond to each other they will help each other as well as themselves. The sine qua non must be that they write: even if they paste in a cartoon, they must still write about it.

4. Question and Answer Box: In order to use this strategy for our project, we would ask you to make it a requirement that students either pose a question once a week (or after each class), or, if they do not have a question, write out how they figured out an answer or suddenly understood something by working out a problem, by watching you work out a problem, by reading the text, or whatever. In other words, each student puts something in the Question and Answer Box once a week, with his/her name on it, so that you know they are each writing out what they know or do not know. Make it clear that they must articulate the full question, not just say "I don't understand electric fields": the "because" or the specific place in the explication that causes the problem must be dealt with in the writing. We suggest a 5 mark unit just for using the Box fully, remembering the goal is to get the students to face what they don't know and to reward them for their confrontation before it is too late.

Using the Box is easy. You can take the first five or ten

minutes of a class once a week to put a student question on an overhead projector and deal with it then and there. You could extract the student questions as an outline for a review class. You could set up student interviews to deal with the questions, and at least you and the student would know exactly where the problem was. You could set up a small group of students to either see you or each other for problem solving. You could team up the questioners and the answerers, if they coincided. It should be very clear to the students that you are using the Box systematically and that you value their questions.

OBJECTIVES: a) To humanize the classroom by creating structures which offer students the opportunity to build relationships of mutual respect, trust and support with other students.
b) To enhance the autonomy and self-sufficiency of each student by placing value upon student centred learning.

METHODOLOGY: We suggest on-going activities in which the teacher offers sometimes more, sometimes less structure, but in which there is always some simple way for the teacher to verify that the diad is working properly.

Our research suggests that FIXED diads of the students' own choice seem to work best. However, drop-outs, illness, and some real diad breakdowns will necessitate flexibility.

Here is a working model of how some of the activities might proceed:

1. At the beginning of the second class, have the students choose partners, interview each other, and then present each other to the rest of the class. You could suggest that 5 points be learned and presented without notes, such as name, programme, something the student hopes to learn in the course, something the student is worried about concerning the course, some outside interest. We recognize that some teachers may be reluctant to dedicate a fairly large portion of a class period to this activity. We would point out, however, that many users report that the subsequent difference in class atmosphere and level of student involvement more than compensates for the investment of time. The presentation without notes also serves to sensitize students to the importance of developing good listening skills in your course. Nonetheless, it may be possible to develop less time-consuming alternatives. At the end of the class, students should be told that they will be choosing a permanent partner the next time.

2. In the third class, allow 5 minutes for students to establish permanent diads and exchange time tables and home phone numbers. You must make a record of the partnerships thus formed. If there is an extra person a triad can be formed.

3. It is essential that there is some in-class use of these diads within the next two weeks. You can ask students to proof-read each other's work to be handed in; to check each other's note-taking. The point which must be made at this stage is that they can be useful to each other.

4. Specific diad tasks:

a) When you assign a specific unit of reading, build in a task which requires that each student must note two difficult or

controversial areas in the reading; speak to the partner about at least one; and make notes on what the partner says.Each student then has two questions and at least one response on a piece of paper. You must valorize this work but you can do so in a multitude of ways: build the material from the students into the discussion, collect the questions and see what you can use for explanations or quizzes and tests, etc. This is an outside-the class use of the diad that can be done by telephone if necessary.

b) When you require that students submit a particular assignment in writing, build in a step where the members of the diad must read each other's drafts.You should offer guidelines to solicit commentary of a specific kind from students.For example, ask them to read each other's work to see if they are using examples well to illustrate their points; to check for the appropriateness of quotations; or to confirm that each student is in fact answering the question. When such guidelines are not given, students tend to limit themselves to correcting spelling and grammar. While diads may certainly be used for correcting spelling, it is also important to encourage students to see the diad as an arena for intellectual exchange. The draft, with commentary is then submitted to you so that you can see that the process has been completed.It is more important to confirm that the commentary has been done than to evaluate it.

c) Here is an excellent diad task that integrates reading, talking, and writing while giving students some control over the content of the task.It is easy for you to check and is executed in less than a class period. This task is particularly useful as a preparatory step for an essay, or assignment. It could easily be adapted to a larger research project.

i) Assign each student the task of coming to a particular class with their own example(s) of particular items which you want them to analyse by applying theoretical material already covered in class. These items might be advertisements to analyse; poems to interpret; characters, images or themes from a piece of fiction; case studies; even interview data. You must be very specific about what you want in terms of materials. The idea is that YOU are directing the task; they are selecting the materials and exercising some critical judgement about what materials will be most appropriate in the process.

ii) The first diad task is to CHOOSE from both partners' material, the single item of material most likely to yield a fruitful analysis. This stage of the task forces students to begin discussing the content of the assignment immediately.

iii) Then, the teacher prepares and distributes to each DIAD a worksheet. Students must collaborate to fill in this worksheet, BRIEFLY describing the specific aspects of the item which they are going to analyse; what these aspects mean; what course issues already studied these meanings raise; and, where appropriate, what course readings they will have to refer to in order to

explain the issues.Students are thus able to share and to support each other through the first essential step of analytical and integrative work. Note that as a team, they only have to identify a tentative approach to their material. The teacher can sensitize students to as many issues and considerations as s/he wishes simply by creating another category on the worksheet.

iv) The students then write their papers INDIVIDUALLY. However, each diad submits its individual papers bound in a single folder, along with a diad worksheet and sample item (where appropriate). Some credit must be given for the work of the diad (see below); but the papers are marked individually).

v) You can also build in diad checking of this, or any other assignment. The check can be as simple or elaborate as you wish, ranging from verification of the authenticity and accuracy of a footnote to more detailed critiques. You must ALWAYS provide some form or mechanism for ensuring that it has been done.

d) It is also possible to allow students to teach each other parts of a course. Split off one small part of a course unit which the students have read about but which you have not yet taught. Stop the class 15 minutes before the end of the period and give the diad partners time to explain it to each other. Tell them that they must finish the explanations by the next class. Be careful to choose something manageable in this time frame. At the beginning of the next class, proceed to either test them on the item or spot check for understanding by asking certain diads to present and others to critique orally.

We suggest that you continually encourage the members of the diads to communicate with each other outside of class; and to help each other in ways which they can think of but which you may not. Use the diads frequently in different ways throughout the semester and stress the importance of co-operation (which does not mean one doing the work for the other). You might require that the diads write a short evaluation of how things are going once or twice in the semester. We suggest very strongly that the diad component of any assignment be rewarded with some marks, however few. (Two or three marks are frequently sufficient to sustain the motivation for working in a diad.) Alternatively, some teachers may choose to award a fixed number of marks for diad work over the semester. Again, 5-10 marks frequently provide adequate encouragement.

STRATEGY: Use of Peer Support Diads/Triads in Science

OBJECTIVES: To valorize the fact that students have something to offer one another and thereby to humanize the classroom and establish an atmosphere of mutual respect, trust and support

METHODOLOGY: We suggest ongoing activities in which the teacher offers sometimes more, sometimes less structure, and always involves some simple way in which s/he can be sure the diad or traid is working appropriately. We suggest fixed diads or traids of the students' own choice, but dropouts, illness and some real diad/traid breakdowns will necessitate flexibility.

The value of diads is fewer complications in terms of arranging meeting times, and possible use of the telephone. The value of triads is greater richness of sharing and perhaps less chance of leader-follower relationships. Please decide on which format you want to use and insofar as possible get the whole class to use it.

Diad/Triad work should be checked off as having been done. In some cases, it may be appropriate to evaluate it for quality. We ask you to build a fixed value into your evaluation system for the use of this partnership system. Five marks seems appropriate.

Early in the semester, in the second or third class, but with at least one class of warning, students should be given five minutes of class time to confirm their diads/triads, exchange telephone numbers and time tables,and so on. Pass around a sheet so that you can have recorded on it who the partners are. (In courses where verbal skills are emphasized, we recommend paired or triangle interviews and peer introductions to the class as a whole, but we realize teachers may feel this inappropriate in physics.) Explain to the class some of the ways in which you plan to use the partners, and how they can maximize this arrangement in informal ways.

Here are some Diad/Triad tasks, done outside of class:

1. Make up, together, a problem on such and such a topic which will then be used either by the teacher in class, as part of a set of homework exercises, for a class test, or for a review class. The problem should be checked off.

2. Individuals in the partnership each make up a question for the other to solve. Both the problems and their solutions then need to be checked off.

3. Individuals in the partnership must find an analogy or example from everyday life which will help explain the concept to a partner. Here the partner writes a very short thank you/critique which identifies the analogy and says how and why it helped. These thanks will supply the checking mechanism.

4. As in (3), individuals find a concrete way to illustrate a concept or problem, but this time using an actual physical

object or a construction made of simple materials. This assignment is particularly appropriate for working with three dimensional concepts. Here the object/construction can be the checking mechanism, and a short in-class display of all such constructs will valorize the sharing process.

5. The diad/triad formulates a question, in writing, which articulates a particular difficulty in their comprehension of some part of the course. They must give full expression to the question, not just say "I don't understand electric fields"; the "because, or the specific place in the explication that causes the problem must be dealt with in the writing. The question can be checked off, and can also be used for class explanation.

6. Now and then the teacher can indicate th the next section of problems contains certain pitfalls, and selected questions should be worked on by the partners, together, though each individual should write out his/her own solution after the conference. A checking mechanism does not have to be used each time, but students should keep a record of these conferences which the teacher should check one time out of three.

Diad/Triad groupings can be used in conjunction with other strategies. If you are using the Collective Class Log, diad units could sometimes write collaborative entries, at your direction. If you are using five-minute free-writes, diad/triad groupings are excellent ways to make use of the writing, inasmuch as they can quickly read each other's and offer encouragement, information, support. If you are using the Question and Answer Box, you could occasionally have the students in the partnership use their weekly questions or answers, before they hand them in, and write brief thank you/critiques for you to check off.

We suggest that you continually encourage the members of the partnerships to communicate with one another outside the class and to help each other in ways which they can think of but which you do not assign. Stress the importance of co-operation which does not mean one doing it for the other. You might get them to write a little evaluation of how things are going, generally, once or twice in the semester.

STRATEGY: An integrated reading, writing, student-initiated co-operatively organized and presented course unit, in which there is group reward and individual accountability.

OBJECTIVES: To empower students as active participants in the learning process; to democratize the classroom; to build a sense of community.

NOTE: We are suggesting that group work (more than 3 students working together for specific learning or project goals) be very carefully orchestrated to ensure that tasks are done, individuals are valorized, and groups really co-operate. Thus, this strategy is carefully described and directive in its methodology. There are ways to adapt this model, however, which we will be happy to work out with you.

METHODOLOGY: 1. Choose a section of your course to which you are willing to devote about three weeks of class time plus prior reading time for students and a period of writing time after the group work is completed for individual assignments. You could choose one thematic unit of the course, one section of the text, one novel, one play, one author, several shortworks, etc.
We suggest that this unit should not come too early in the course. If you like the strategy you can do it more than once; but you do not have to in order to accomplish its goals.

2. Alert students early in the semester that this is a unit in which individual initiative and group co-operation will be important.

3. Get students reading far in advance of your starting date and require that they keep a reading journal (about 6 sensibly spaced entries on their reading process: reactions to the material, questions, interpretations, connections with the rest of the course and with their lives, etc). Try to make the keeping of this journal an easy and pleasant task for them. You will want to set dates for each of the six entries or check them off in some way; but the entries should not be "corrected". Read them as interesting accounts of students trying to come to terms with material on their own.

4. To start the unit, have students bring their journals to class and use them in order to produce a list of topics (6, 8, or 10) which they think would be essential to cover in order to understand this particular unit/book/author, etc.

5. Organize students into groups of 4. (If you are using diads, you can put 2 diads together.) Have each group review the individual lists, eliminate repetition, and organize the topics in order of importance and interest for the group.

6. The next step is to use these group lists to produce a class list of topics which you feel covers the unit adequately. This task can be done by yourself as part of your preparation time or,

even better, it can become an interesting class activity, with each group watching its contribution go up on the board. You will want to ensure that each topic is broad enough so that it can be subdivided. (see 8)

7. Each group chooses a topic area. The teacher acts as referee.

8. Each group meets to subdivide the research for the topic. You should note that each individual student must have a task that is meaningful, requires a reasonable amount of work to research, can be written up, and will add something to the group. The teacher must therefore approve the division of labour which emerges from each group.

9. Individuals should work outside of class; however, it helps to devote approximately two class periods to various preparations: one class to assemble individual information and one class to decide as a group on some interesting way to present it (NOT JUST EACH STUDENT READING NOTES). Where the research task is more extensive, it might make sense to expand the time devoted to individual research and to dedicate less class time to group meeting. For example, students might meet for 10 minutes at the end of several classes to consult with their groups.

10. As each group presents, the rest of the class evaluates the presentation on forms provided by you. It is important to make the criteria for evaluation clear. Evaluations can also be done as a group or diad project. (This produces fewer evaluations to check.)

OR

You could ask the rest of the class to make notes on the presentations. This is a particularly good option if you want them to master what is presented. It might appear later on a test. You must, however, check to ensure that notes are being taken.

OR

If you have lots of class time, individuals or groups could make up questions designed to elaborate or clarify each presentation.

The point is that students must DO something if they are to become engaged in listening to each other.

11. After all the presentations, each individual must write up her/his part in some specific way. You could direct them with some instruction like: "The Importance of (this individual item) to the (group topic) in the study of (the class unit)". This step is important. It allows for individual accountability.

12. For the pruposes of evaluation it is important to emphasize that each step must have some mark value attached to it. We suggest that low but specific values should be assigned to: journals, individual topic list, group topic list, group division of labour, and evaluation, notes, or questions. Higher values should be placed upon: group presentation and individual writing.

Vanier College

Le 28 décembre 1988

Chèr(e) Collègue,

Suite aux décisions prises lors de notre réunion de 30 novembre, nous espérons vivement vous voir a l'atelier:

jeudi 12 janvier, à 9h 30, salle D543, Collège Vanier, 821, Boulevard Ste-Croix.

Pour se rendre au CEGEP, à partir de l'autoroute Décarie - angle Boulevard Métropolitain - suivre la rue Décarie vers le nord jusqu'à la rue de l'Église; virer à droite et continuer jusqu'au Boulevard Ste-Croix. Virer à gauche et tout de suite à droit et stationner sur le terrain du collège. On peut aussi s'y rendre en prennant le métro jusqu'à la station "du Collège" et ensuite l'autobus 117 jusqu'à la rue de l'Église. (Voir plan ci-joint.)

Nous avons l'intention de mettre quelques-unes des stratégies en pratique avec vous, afin d'en clarifier les enjeux mais aussi pour vous permettre de prévoir certains des problèmes qui pourraient survenir. Nous profiterons aussi de l'occasion pour vous distribuer les questionnaires destinés aux étudiant(e)s, les grilles d'utilisation des stratégies choisies, et des fichiers d'étudiant(e)s pour vous faciliter la tâche de controler leurs travaux.

S'il vous plaît, apportez vos documents de l'atelier précedant, et votre plan d'étude si vous ne nous l'avez pas déja soumis.

L'atelier officiel prendra fin a 13h 00, mais il nous fera plaisir de rester aussi longtemps que vous désirez, pour répondre aux questions, et discuter de la planification particulière des cours.

En attendant, nous vous souhaitons de joyeuses fetes.

Avec nos amitiés ccrdiales,

Fran Davis

Fran Davis
Arlene Steiger
Karen Tennenhouse

821 Ste-Croix Boulevard St-Laurent (Quebec), Canada H4L 3X9. Telephone (514) 744-7500

A PRACTICAL ASSESSMENT OF FEMINIST PEDAGOGY

WORKSHOP OUTLINE

January 12, 16, and 20, 1989

9:30 - 10:15 Coffee and Danish
Informal discussion
Participants asked to place a question on the Project in the "Question/Answer Box"

10:15 - 11 Introduction to workshop: a participatory experience with the strategies
Free-write on the concerns, interests, enthusiasms and/or doubts participants have at this point
Brief overview of free-writing practice in the classroom and the various ways to use it
Individual introductions and sharing of free-writes
Group discussion of major issues raised
Self-reflective summary of the process, including some points to remember when using free-writing in the classroom

11 - 12:15 Free-write on specific application to discipline of a different strategy (suggestion: using dyads)
Formation of dyads by particpants' discipline
Assignment of dyad task: sharing the strategies
critiquing the strategies
listing 2 problems, 1 solution
Group sharing of dyad reports
Self-reflective summary of the process, including some points to remember when using dyads in class

12:15 - 12:45 Introduction of "Question/Answer Box" and how it might be used in various courses
Addressing the questions of the group:
as a model for pedagogy
as a final attempt to clarify points for participants
Brief commentary on how to use free-writes or longer journals for drawing together diverse activity classes

12:45 - 1 p.m. Presentation of testing materials and record sheets to participants

xx

Vanier College

A St. Laurent, le 20 février 1989

Chèr-e Collègue,

Nous vous invitons à une rencontre de mi-session qui regroupera les participant-e-s à notre projet de recherche "A Practical Assessment of Feminist Pedagogy". Cette rencontre aura lieu Mercredi, le 15 mars 1989, à 19:30, à la salle D-543, Collège Vanier, 821 Boul. Ste. Croix.

Plusieurs des professeurs participant-e-s ont suggéré qu'il serait utile et intéressant de partager, dans une telle rencontre, leurs premières réactions au projet. Nous vous invitons tous, francophones et anglophones, à une même rencontre afin de vous permettre d'échanger vos idées avec des collègues, soit de la même discipline soit d'une autre. Nous ne ferons pas d'exposé formel.

Nous nous réjouissons de partager avec vous vos expériences, et de répondre à vos questions s'il y a lieu. Du café et un dessert seront servis.

Veuillez trouver ci-joint la liste des numéros de téléphone, pour vous permettre de contacter les autres participant-e-s.

Veuillez agréer, cher-e collègue, nos sentiments les meilleurs.

Fran Davis
Arlene Steiger
Karen Tennenhouse

R.S.V.P.: Fran : 484-7646
Arlene : 272-9126
Karen : 481-7085

FD/AS/KT/cc

821 Ste-Croix Boulevard, St-Laurent, (Quebec), Canada H4L 3X9, Telephone (514) 744-7500

VEUILLEZ REPONDRE PAR "OUI" OU PAR "NON" AUX QUESTIONS SUIVANTES.

SI VOTRE REPONSE EST "OUI", VOUS NOIRCISSEZ LA CASE "1"
SI VOTRE REPONSE EST "NON", VOUS NOIRCISSEZ LA CASE "2"

Efforcez-vous de repondre a toutes les phrases, meme si certains choix vous paraissent difficiles.

59. Je crois que le CEGEP est une preparation a la vie importante.

60. Ordinairement, j'aime mes cours d'informatique.

61. J'aimerais travailler en informatique.

62. Je me sens pret-e a suivre d'autres cours d'informatique.

63. Mon programme me permet de suivre des cours qui m'interessent.

64. J'avais hate de suivre ce cours.

65. J'aimerais suivre un autre cours en informatique.

66. Je vais probablement poursuivre mes etudes jusqu'a l'obtention du baccalaureat.

67. Il serait bon que tous les etudiant-e-s de CEGEP suivent au moins un cours d'informatique.

68. Je crois que je suis fait-e pour travailler en informatique.

69. J'aimerais bien poursuivre mes etudes jusqu'a la fin du CEGEP.

70. D'une maniere generale, je me plais au CEGEP.

71. J'aime l'informatique parce que j'y apprends des choses auxquelles j'ai deja reflechi.

72. J'aime parler de choses qui se rapportent a l'informatique.

73. Je vais probablement poursuivre mes etudes jusqu'a l'obtention de la maitrise.

74. Je trouve qu'en general les gens qui ont un diplome universitaire sont plus interessants.

75. Je trouve que mes cours sont etroitement relies a ma vie.

76. Je vais probablement poursuivre mes etudes jusqu'a la fin du CEGEP.

77. J'estime que le CEGEP est necessaire pour pouvoir faire le travail que je veux.

78. J'aime regarder les emissions de television qui traitent de l'informatique.

79. J'aimerais bien poursuivre mes etudes jusqu'a l'obtention du baccalaureat.

80. L'une des choses que j'aime bien au CEGEP, c'est que j'arrive a connaitre beaucoup des etudiant-e-s qui suivent les memes cours que moi.

81. Je trouve que l'informatique est une matiere difficile a apprendre.

82. L'informatique est une matiere interessante.

83. J'aimerais bien poursuivre mes etudes jusqu'a l'obtention de la maitrise.

84. Selon mon experience, les cours au CEGEP touchent habituellement de pres mes interets personnels.

85. Il serait bien difficile pour une femme de faire carriere en informatique.

86. Je trouve que l'informatique touche de pres mes interets dans la vie.

FINAL TEACHER INTERVIEW SCHEDULE:

1. What methods did you use? How?

a) Self-disclosure:

What kind of disclosures? Course-related? Other?

b) Peer-support groups:

How were they chosen? Gender mixed or gender separate?
Did the support group become hierarchical?

c) Writing:

To what extent was it affective? To what extent was it focussed on course material?
To what extent did you use affective or cognitive questions?
To what extent did the students respond affectively or cognitively?

2. How did the methods go?
What kind of direction did you provide? Did you meet resistance?

What were the positive aspects? Negative aspects?

3. How do you feel the students felt about it?
Did all students feel the same way?

Did some type(s) of students benefit more than others?

What characteristics or learning styles in students did this method draw out?

Did you feel that there was a difference in the way that men and women reacted to this method?

4.Did the method have repercussions on other aspects of your teaching?
Consider: Workload, class atmosphere, ability to cover the course content, increasing the personal connections made by students to the material, effect upon the student/teacher relationship, the student/student relationship.

5. Would you use the method again? How would you change it? Do you have advice for others?

FICHIER DE CONTRÔLE DE "SOUTIEN MUTUEL EN ÉQUIPES" OU DES TRAVAUX COLLECTIFS

Nom de professeur _____ Numéro de section _____

Numéro d'équipe	Noms des membres	Semaine 1	Semaine 2	Semaine 3	Semaine 4	Semaine 5	Semaine 6	Semaine 7	8	9	10	11	12	13	14	15
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FICHIER DE CONTRÔLE DES TRAVAUX DE "L'ÉCRIT DANS LE PROCESSUS D'APPRENTISSAGE"

NOM DE PROFESSEUR _____ NUMÉRO DE SECTION _____

NOM D'ÉTUDIANT(E)	SEMAINE 1	SEMAINE 2	SEMAINE 3	SEMAINE 4	SEMAINE 5	SEMAINE 6	SEMAINE 7	SEMAINE 8	SEMAINE 9	SEMAINE 10	SEMAINE 11	SEMAINE 12	SEMAINE 13	SEMAINE 14	SEMAINE 15

GRILLE D'UTILISATION DE LA "BOÎTE AUX QUESTIONS ET RÉPONSES"

OM DE PROFESSEUR _____ NUMÉRO DE SECTION _____ BLOC DE NOTES ALLOUÉ À CE TRAVAIL (5%?) _____

MAINE	DATE	QUESTION (S), OU SUJET	COMMENT UTILISÉ	RÉACTIONS DES ÉTUDIANT(E)S	COMMENTAIRES DU/DE LA PROFESSEUR
		EXPLIQUER LA TÂCHE AUX ÉTUDIANT(E)S, ET FIXER UNE DATE LIMITE REGULIÈRE (UNE OU DEUX FOIS PAR SEMAINE) POUR SOUMETTRE LEURS QUESTIONS.			
		UTILISER LA BOÎTE EN CLASSE POUR LA PREMIÈRE FOIS :			

GRILLE D'UTILISATION DE LA STRATÉGIE "SOUTIEN MUTUEL, PAR ÉQUIPES DE DEUX OU DE TROIS ÉTUDIANT(E)S"

om DE PROFESSEUR _____ NUMÉRO DE SECTION _____ BLOC DE NOTES ALLOUÉ À CE TRAVAIL (5%-10%) _____

maine	DATE	ACTIVITÉ OU TÂCHE	COMMENT CONTRÔLÉ	COMMENTAIRES
	DEUXIÈME RENCONTRE DU COURS	EXPLIQUER L'IDÉE AUX ÉTUDIANT(E)S, ET LES ENCOURAGER À PENSER AU CHOIX DES PARTENAIRES. INTERVIEWS ET PRÉSENTATION, SAUF DANS LES COURS DE SCIENCE.		
	TROISIÈME RENCONTRE	FORMATION DÉFINITIVE DES ÉQUIPES, ET INSCRIPTION À LA LISTE GARDÉE PAR LE/LA PROFESSEUR.		
		PREMIÈRE TÂCHE DES ÉQUIPES:		
		ÉVALUATION PAR LES ÉTUDIANT(E)S DU FONCTIONNEMENT DES ÉQUIPES.	MODE D'ÉVALUATION?	RESULTATS?

GRILLE D'UTILISATION DE LA STRATÉGIE "RÉVÉLATION SYSTÉMATIQUE AU COURS D'UNE CONFÉRENCE/DÉBAT EN CLASSE"

om DE PROFESSEUR _____ NUMÉRO DE SECTION _____

maine	DATE	DÉCRIVEZ BRIÈVEMENT LE CONTENU DE LA RÉVÉLATION	RÉACTION DES ÉTUDIANT(E)S, S'IL Y A LIEU	COMMENTAIRES DE LA /DU PROFESSEUR

GRILLE D'UTILISATION DE LA STRATÉGIE " UTILISATION DE L'ÉCRIT DANS LE PROCESSUS D'APPRENTISSAGE "

Nom de professeur _____ Numéro de section _____ Bloc de notes alloué à ce travail (5% - 10%) _____

Semaine	Date	Tâche de l'étudiant(e) ou question posée	Comment utilisé	Contrôlé?	Commentaires
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